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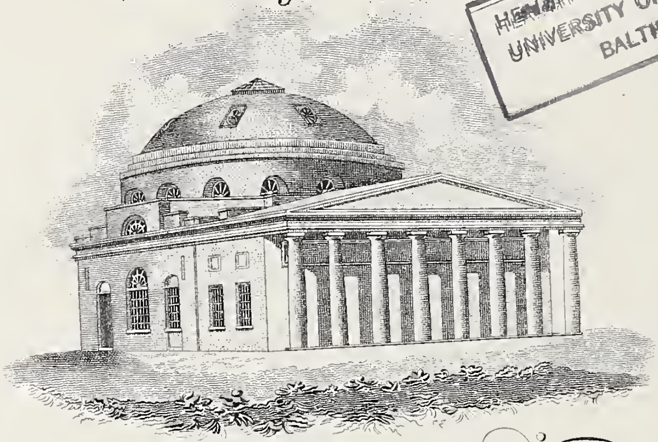

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What's New in Gastroenterology

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RECENT medical progress in gastroenterology provides an opportunity for a brief commentary on some important new contributions and for a revision or review of older concepts and methods.

As to the present status of therapeutic measures directed toward the cure or control of two diseases —peptic ulcer and chronic ulcerative colitis—it is proper to stress the fact that these diseases still present a challenge, both as to etiology and as to therapy. No cure exists, and general principles still obtain.

Enterogastrone, duodenal extract, and extract of pregnant mare's urine all represent a search for the physiological approach to ulcer therapy. A certain amount of unfortunate publicity has raised as yet unwarranted hopes as to the efficacy of treatment of ulcer by duodenal extract or enterogastrone. To date no convincing evidence has been obtained that duodenal extract is of any striking value in altering the course of peptic ulcer. The bulk of evidence available at present in regard to the use of enterogastrone in the prevention or cure of ulcer leaves little room for enthusiasm. Sandweiss and his group concluded, on the basis of enterogastrone therapy in 42 patients, that clinical results were very disappointing. Symptom-free intervals were short, and recurrences were frequent. These patients were treated for a relatively short period of time, but the experience of others with this product for as long as six months to a year and longer strongly suggests that recurrences are not prevented in a high percentage of cases. The country-wide survey that is being carried out by Ruffin will doubtless be a valuable contribution to this subject. It is to be added that the product is as yet not obtainable in pure form, is irritating and expensive, and cannot be given in doses comparable to those used in early animal experiments. The effect of enterogastrone on gastric secretion in normal human beings in doses up to 400 mgm. was negligible in modifying gastric secretion after histamine or Ewald test meals. The use of pregnancy urine extract is not entirely new and is suggested by previous work by Sandweiss and Necheles with urogastrone, a gastrosecretory depressant extracted from human urine. The extract of pregnant mare's urine was used by Page and Heffner on 26 patients with intractable duodenal or jejunal ulcers. This substance has a gastric secretory inhibitory effect in animals and was given as an oral preparation. All other forms of therapy were discontinued during the therapeutic trial over a period of 20 months. Twenty-three of the 26 patients who were properly classified as having intractable ulcers responded favorably during this period of time. All of the chronic jejunal ulcers became asymptomatic within three or four weeks. Obviously such results are encouraging if they can be repeated by other observers and can be shown to be of lasting value.

The use of resins and protein hydrolysates as antacids or buffer solutions requires some comment. It is probably fair to say that in most instances resins offer little or no advantage over other commonly employed preparations. There is no evidence that they have any particular virtue. A careful study on the use of casein hydrolysate by Lopusniak and Berk of Philadelphia demonstrated that casein hydrolysate mixture has a somewhat better buffer and neutralizing action in the stomach than milk or milk and cream but that this buffer action was not significant in the first portion of the duodenum. Furthermore, the use of casein hydrolysate mixture was followed by fairly pronounced secondary stimulation of acid gastric secretion. It would seem that this mixture, except for the very special purpose of providing added nitrogen in badly depleted patients, has little to recommend it over the more orthodox feeding mixtures.

Section of vagal nerves for control of duodenal or jejunal ulcer is still on trial. Reports in the litera-

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ture range from enthusiasm to skepticism. Enough time has elapsed to warrant some conclusions, although it is still too early to attempt to make a final evaluation of this procedure. It is fair to say that when performed as a single operative procedure it can be followed by unpleasant symptoms of fullness, gastric stasis, diarrhea, etc., in an appreciable number of patients, although as a rule these symptoms do not persist. Ulcer recurrences following vagotomy alone may run as high as 11 to 12 per cent, a figure that is definitely higher than that of recurrences after subtotal gastrectomy. The combination of posterior gastroenterostomy and vagotomy has received considerable notice, but patients so treated have not been followed for a sufficient period of time to warrant definitive statements. It may be that this type of operation will present a valuable addition to the therapy of ulcer. Certainly it appears to have been a very effective measure in the control of intractable stomach ulcers. It is considered fair, however, to urge conservative skepticism until more time has elapsed. The author's feeling is that vagotomy provides a real addition to the therapeutic armamentarium but that its use probably applies to carefully selected cases and final results following its performance are still not completely known.

Radiation therapy in peptic ulcer has been completely reviewed by Ricketts, Palmer and their associates in Chicago within recent months. This form of treatment is not new, but their report is of interest, inasmuch as it represents observations on more than 800 cases followed during the years 1936 to 1947. The total amount of radiation varied between 1,100 and 2,500 r in divided doses directed toward the fundus of the stomach. Such therapy produced acute transitory inflammation of the gastric wall, with hyperemia, hemorrhage, edema, exudate, and degenerative changes in epithelial cells and lymph follicles. Atrophy of the gastric mucosa often ensued and was uniformly present in patients with prolonged postradiation anacidity. Such irradiation of the acid-secreting portions of the stomach frequently produced achlorhydria, which varied in duration from a few days to as long as eight years. There was a higher incidence of postradiation achlorhydria in patients with gastric ulcer than in those with duodenal or jejunal ulcer. If achlorhydria was produced, ulcer pain disappeared, and if the achlorhydria persisted, there was invariable healing of the ulcer.

The investigators are careful to point out that while roentgen irradiation of the stomach may produce a profound depression of gastric secretion, this depression persisted for variable lengths of time which could not be predicted, nor could the degree of depression be predicted. The effect on the course of the ulcer depended upon the degree and duration of the secretory depression. It is important to note that in those patients with prolonged achlorhydria, gastric atrophy ensued, and it is wise to ask the question whether such an end-result is favorable and whether it might not lay the basis for future difficulties from possible malignant degeneration. It is probable that radiation therapy of peptic ulcer should be employed only in carefully selected cases otherwise resistant to treatment. It should be carried out only by skilled radiologists and should be followed by careful observation. It may represent a proper therapeutic maneuver in certain difficult cases.

The treatment of ulcerative colitis has received constant attention in recent years, but little new has been added. Aureomycin and chloromycetin to date have been tried in small groups of patients, with variable results. It is highly probable that these drugs are an addition of slight importance to the existing measures for attempting to combat colonic infection in this disease. The author's experience with these two preparations has been extremely disappointing.

Experiments indicate that lysozyme production is greatly increased in the diseased colon, but to date no measures have been devised to adequately inhibit lysozyme production or to reduce its activity in removing protective surface mucus. Treatment of ulcerative colitis with extracts of intestinal mucosa has been attempted by Friedman and Haskell of Philadelphia on the theory that there is a deficiency of an intrinsic protective factor or factors normally present in the bowel mucosa. Oral therapy with extract of the small intestine of hogs was tried in a group of patients, with symptomatic improvement in many, as noted by a decrease in frequency of bowel movements and disappearance of gross blood from the stools. Sigmoidoscopic observations also showed decreased mucosal friability, but in patients with widespread disease only a few showed any benefit as evidenced by careful x-ray studies. It is stated that the disease in patients so treated had been refractory to other measures, but such a form of therapy must be followed over a long period of time in this chronic, recurrent malady before a proper evaluation can be made of its effectiveness. It is to be pointed out that one patient had a terrific allergic reaction from the hog mucosa.

A new approach to the treatment of ulcerative colitis is that carried out in a small group of patients by Dennis, Eddy and Westover of Minneapolis, who have reported results of transthoracic vagotomy in 22 patients. Fourteen of these patients showed improvement following this procedure, but the authors are careful to point out that it is an experimental approach and should be so considered until a prolonged follow-up has occurred. It is of interest that in general the good results occurred in patients who had had the disease for only a short time and had minimal bowel scarring.

A very recent report by McDermott, Knight, and Ruiz-Sanches on the use of chloramphenical (chloromycetin) in the treatment of typhoid fever confirms the suggestion of previous reports by Woodard, who used this preparation in Malaya to treat typhoid and typhus. McDermott and his associates report on the treatment of 51 patients with typhoid fever. Four received polymyxin-B, but the drug was rejected because of severe toxicity. Thirty-five patients received aureomycin in doses of 6 to 12 gm. daily, with uneven and questionable responses. The remaining 13 patients were treated with chloramphenical. In 12 patients the temperature returned to normal in approximately three days, and these patients remained afebrile while being so treated. One of the 13 patients died from a complication while under therapy. It should be pointed out that this remarkable response to the antibiotic was essentially one of a drop in temperature. The drug apparently had no effect on complications of the disease, and studies indicate that it did not reduce the number of typhoid carriers. Nevertheless, if these findings are confirmed, it would seem that an important contribution has been made to the treatment of a hitherto resistant infectious disease.

As to certain recent reports concerning liver disease and its treatment, although the idea is in no sense new, the very careful studies by Kunkel and his associates in New York on the effect of rigid sodium restriction in patients with cirrhosis of the liver and ascites is important because of the completeness of the study. The intake of sodium chloride of less than 1.0 gm. per day in 13 patients with steadily accumulating ascites immediately stopped fluid formation in the abdomen in all but one of the patients, with resulting clinical improvement and an associated rise in serum albumin. When sodium restriction was stopped, ascites returned in all but two of the patients, indicating the necessity of many months of such therapy.

The report by Berger and his collaborators on the effect of an exchange resin (Liquonex CR W) on electrolyte balance and its use in edematous states is of interest in this connection. Oral feeding of this resin resulted in the excretion of 80 per cent of dietary sodium and 70 per cent of dietary potassium in the stool without salt restriction. In a patient with cirrhosis and ascites, the ascitic fluid disappeared in 22 days without the use of other diuretics.

To clarify the role of protein in the treatment of human liver disease, Eckhardt and co-workers studied the effect of protein starvation on the clinical course of the disease and on liver function tests and liver histochemistry. Patients were fed a diet adequate in calories but not sufficient to maintain nitrogen equilibrium. A negative nitrogen balance resulted, but there was manifest clinical improvement, a decrease in liver size, and improvement in laboratory tests. Biopsy studies revealed a diminution of liver cell protein and no alteration in fat content. Resumption of protein feeding in adequate amounts, in addition to an adequate caloric intake, showed progressive histochemical improvement in the liver tissue. It is thus apparent that essential dietotherapy of degenerative liver disease must depend upon an adequate caloric intake and an adequate supply of nitrogen if optimum improvement is to be obtained.

The use of testosterone, choline and methionine was studied by Gabuzda and his group in Boston, who showed that in liver disease, testosterone proprionate had a protein anabolic effect in these patients but that a positive nitrogen balance was most effectively achieved by adequate dietary protein. No appreciable nitrogen-sparing action could be attributed to choline and methionine in generous dosage.

Further evidence that intensive therapy in degenerative liver disease promotes a reversal of serious alterations in liver function is shown in the recent studies of Sterling and his group from Chicago. Electrophoretic studies of serum protein in patients with cirrhosis were followed during intensive therapy. Serious alterations in the level of serum albumin, gamma globulin and and beta globulin fractions were gradually but steadily returned to normal levels in patients who were successfully treated, indicating that these evidences of altered function were not irreversible in many instances.

The use of human albumin has recently been studied by Post and Rose of New York, who administered this substance intravenously to 16 patients critically ill with decompensated cirrhosis for a period of about three months. Sufficient albumin was given to maintain normal serum albumin levels. Careful dietary measures were carried out at the same time, a fact which may well have contributed to the favorable results that were obtained. The authors noted striking improvement in 13 patients. Seven patients who showed pronounced diuresis were comatose when albumin therapy was begun. Rose and Post, unlike some other investigators, feel that intravenous albumin has a definite place in the treatment of decompensated cirrhosis of the liver. The author's observations in similar cases lead to the belief that this is an entirely correct assumption, although the results from intensive albumin therapy are not predictable in advance.

The use of fat in intravenous nutrition has promise of very great clinical importance. Two groups of investigators have recently presented evidence that specially prepared fat emulsions may eventually be available for intravenous therapy, a need that has long been felt. Stare and his group in Boston have amplified previous reports on the use of intravenous fat emulsions in rats and dogs by a very recent statement that within the past year, fat emulsions have been given successfully to human beings, furnishing as much as 1,000 to 1,500 calories by vein daily. Stare states that fat emulsions can be prepared which can be given intravenously without reaction and which contribute appreciably to caloric intake, without requiring large fluid volumes or prolonged infusion times. Studies by Chaikoff, Enteman and Dauben recently reported from the University of California similarly justify the conclusion that emulsified fat introduced directly into the blood stream is available for caloric purposes. These investigators showed that about 50 per cent of tagged injected fatty acids were recovered in the liver and had been incorporated into phospholipids at the end of 24 hours. Further elaboration of this idea should be of inestimable value in providing a means for the rapid control of serious malnutrition provided emulsions can be prepared which can be given without the danger of serious reactions or fat embolism. At present, important studies are being carried out in relation to this particular problem by several other important investigative groups.

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QUESTIONS AND ANSWERS

Dr. Chester Jones: The first question: "What about the cabbage juice diet for peptic ulcer recently reported upon from Stanford University?"

The proper answer would be—I don't know. It seems to me that the only attitude one can take is that this is an approach to the problem which has not been fully explored, and it is not known exactly what would be the answer. However, it is fair to say the cabbage juice is a glycogen and can cause goiter. Therefore, any such mechanism, if indulged in any length of time, should be watched with a good deal of interest, and also suspicion.

Question: "How do you treat uncomplicated duodenal ulcer? How strict a diet, and what medication?"

As time is limited, I will simply say I think the general principle that we all agree to, as far as medical treatment of uncomplicated duodenal ulcer, is about as follows: It is in two parts, first, treating of the ulcer, and then an attempt in between remissions, to either lengthen the interval of remission, or to prevent it completely. In most cases, physicians are not successful in completely preventing all remissions. In the acute phase, the indicated advice is frequent small meals of simple food. Time is a common denominator of all dietary measures. All one has to do is look at the details of the region to know that the actual food that is used, by and large, is not so important as the fact it is given frequently, on time, and in small amounts.

If the ulcer is very acute and very difficult to control, it means feedings during the night, as well as during the day; or, if one desires—and as a rule I don't—one can put the patient on nasal drip of continuous milk feeding, or provide continuous suction during the night to take away the night secretion. Those are measures that are usually not needed. A simple trick sometimes is to wake the patient up about 1 o'clock in the morning and have a feeding at that time.

How strict a diet? Very strict during the acute phase of several weeks. In between, I think any simple, well-cooked tender food eaten on time, at frequent intervals, five or six feedings a day, should be the proper dietary control for an ambulatory patient whose ulcer is not active at that particular moment.

I think there has been too much attention paid to the very minute details of diet, to the exclusion of a lot of other factors. Anything that contributes to peace of mind and avoidance of physical fatigue is obviously important. It requires knowing the person, and it takes more than a four-minute interview to accomplish that. It takes time.

As to the use of drugs: There is no specific drug that cures ulcer; no specific drug that gives you absolute assurance of the control of the ulcer problem. There are three approaches in the main, however. One is the anti-acid, and I think probably at present in most instances the aluminum gel compounds are good. The thing to do is to avoid that which causes constipation and bowel difficulty in the individual.

The second approach is that of desedation, I think, and very frequently during the acute phase of ulcer, desedation with barbiturates is helpful at times in combination with the use of atropine or its derivatives in order to produce a block on the end of the parasympathetic nerve ending of the stomach.

There is no substitute known among the new drugs to replace belladonna and atropine. The new drugs have proved ineffective in most instances. Furthermore, they are more expensive, and therefore, as a rule, have little to recommend them.

Belladonna is probably as good as any of the antispasmodics, only if given in adequate dosages. At times this does produce side effects, however, to preclude its use. During acute phases of ulcer, parenteral administration of atropine and sodium luminal by the clock, at eight-hour intervals for two or three days, often will get the situation under control. No medication in between recurrences absolutely prevents recurrences. The use of anti-acids certainly does not prevent recurrences.

Question: "Would you say something more about vagotomy, particularly in association with gastroenterostomy to obviate stasis in the stomach?"

I would like to say this: In trying to evaluate the original procedure, it was, I think, very much wiser to do vagotomy only in order to see what vagotomy produced. Simple vagotomy was done on a good many patients who had a certain amount of unrecognized or barely recognized pyloric obstruction. In those cases the operation was a complete failure. If you are going to use vagotomy alone, it is important to make sure there is no real partial obstruction near the pylorus, no matter how little it is. To obviate this, gastroenterostomy has been of real value.

In the intractable case that has been carried for a long time, this approach may be a really valuable one. But I'm sure that we haven't followed these cases long enough as yet. Grimson, who has done a good many at Duke, hasn't followed his cases long enough to be able to say that the recurrence rate is satisfactory. It seems to me that vagotomy should be watched closely, and that the number of cases in which the operation is done should not be increased until we know what a little bit longer observation will tell us. After all, it took us a good many years to find out the end result of gastrostomy, and it has taken us a good many years to find out what the end result of subtotal gastrectomy is. It seems the subtotal gastrectomy is still the method of choice.

Question: "How is it possible to treat a patient with cirrhosis and ascites with a high caloric, high protein diet, and yet keep the sodium intake low enough to prevent recurrence of ascites or edema?"

It simply takes the help of a well-trained dietitian to know how to estimate sodium in foods, and one who is capable of giving the patient some variety. It can be done. It requires care of the patient, and a certain amount of time. It isn't easy, but with good dietary advice one can get the information for the planning of such a diet.

Question: "Do you recommend nutritional supplements of B complex for chronic hepatic insufficiency?"

No. Although on the basis of all the facts that are in I'm not convinced that these are unnecessary, I do know that when one stresses supplements, almost always the patient turns to the supplements because they're easy to take in an adequate diet. One cannot get along on a fairly adequate diet and the use of supplements. The diet has got to come first. The emphasis has got to be placed there, and it has got to be continuous.

Furthermore, we have shown by careful studies on a group of patients using serol liver, that we can apparently get situations in which actually as good results are obtained by diet and rest alone. Rest is important. It cuts down the body requirement. It is just as good as when we added supplements and/or vitamins.

A really adequate diet which contains, I think in these cases, about 2 grams of protein and probably between 40 and 50 calories per kilogram of body weight contains all of the vitamins in that diet. It also contains perfectly adequate amounts of methionine and choline. Additions of methionine and choline probably do not add enough to warrant their use. That is a personal opinion. I can't prove that last statement entirely, but I strongly suspect it is true on the basis of observations.

On the question of the needle biopsy—Dr. Womack brought out the points this morning, but I think it's only fair to state that some of us have done many hundreds of needle biopsies. If done by somebody who is trained to do it carefully, so the risk of the procedure, which is real but not large—it is a fraction of 1 per cent—is minimized, this method can give adequate information. Cecil Watts in Minneapolis any number of times has taken needle biopsies of the liver. About 3 centimeters in diameter, they show a good deal of the structure. It is always open to question, but in a diffuse disease, such as the condition we call cirrhosis of the liver, I'm sure it can be done.

The practical use of this measure is very valuable for study of the physiological condition. As far as the practical aspect in individual cases is concerned, there are only a few cases out of a large number in which one does do an accurate diagnosis. As Dr. Womack said yesterday, there are certain cases—for example, of painless jaundice—in which exact diagnosis is not possible. Every once in a while, it's important to know whether you're dealing with hepatitis or stasis in the bowel. There are various diseases that involve the liver which are not absolutely identifiable by ordinary laboratory tests, and frequently they can be elucidated by a good liver biopsy.

Question: "Repeat the name of the diuretic for diverting sodium in the gastrointestinal tract."

Liquonex. It is a trade name. It has just been reported in some work reported the first of last week at Atlantic City.

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What's New in Orthopedics

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In the enlargement of the field of orthopedic surgery, rapidly encompassing as it has much that was considered in the province of general surgery, the pace of developments has become greatly accelerated. Under "What's New." consideration should be given to recent research investigations, especially those of physiochemical nature, and to the more practical observations along clinicopathological lines, including changing ideas in teaching orthopedic surgery and the treatment of fractures.

It is evident that penicillin therapy has taken or may take the treatment of acute hematogenous or traumatic osteomyelitis out of the hands of the surgeon and put it into the hands of the internist or pediatrician, and at the same time has completely altered the prognosis. Dosages of 100,000 or more units are being given every two hours in proven or even suspected cases. This may be dangerous propaganda to spread amongst physicians who have never made an intimate study of bone infections, especially those resulting from injury, for the practitioner who is not specially trained may be inclined to handle them without the necessary meticulous debridement, careful hemostasis and traction, with or without splinting, when fracture is present. He who depends solely on the hypodermic injection will get into difficulties.

The author agrees with Lederle[5] that in open fracture the extension of thrombosis in adjacent blood vessels and the loss of vitality in infected bone with necrosis and separations are accompanied by a walling-off process in the local area which inhibits the access of penicillin-laden serum to the infected bone, thus nullifying the effect of the antibiotic. Judicious surgical treatment at the proper time might reverse this process.

Prolonged use of the antibiotics, started early in the attack of bone infection before destruction (death) of any large areas occurs, may cause the walled-off infected bone finally to become sterilized. Several weeks of administration may lead to aseptic instead of septic necrosis of the bone and avoid the formation of a gross involucrum or massive sequestrum. This bone then, under protection of proper splinting and freedom from intensive trauma, becomes replaced by new bone laid down within the old necrotic bone, thus saving bony contour and hopefully leaving growing areas in the epiphyses active. The use of antibiotics (penicillin) is now accepted in an earlier attempt at bone transplantation in areas previously septic, as after open infected fracture. Three to 8 million units are given over quite a long period of time and a surgical approach is sought to the nonunion remote from the old infected scar. This may be attempted within a few weeks after closure of the primary infected wound or the healing of defects left by chronic osteomyelitis.

In the field of physiochemistry, orthopedic surgery has been forced to consider the latest advances concerning blood coagulation and thrombosis, which are frequent bugbears after orthopedic operation and necessary long immobilization. Felder[3] advises the use of 500 mg. doses of Pitkin's menstruum with a small amount of a vasoconstrictor hypodermically, in divided doses in each thigh, as a practical method of lowering prothrombin time and raising clotting time, thus side-stepping thrombosis and embolism. This holds the clotting time elevated two or three times above normal for 48 hours. Dicumarol, if used, can only be given orally, as it is insoluble except in strong alkaline solution. Its use must be accompanied by careful prothrombin determination, as its action is delayed. The author does not use it preoperatively. On the first postoperative day, 300 mg. is given, 200 mg. on the second day and 100 mg. on the third day, trailing off to 50 mg. doses as the prothrombin determination may indicate in the face of a real thrombosis. In his work Felder found that thrombophlebitis developed in 6.6 per cent of patients operated upon for fracture of the hip. Loewe and Hirsch[6] believe that the incidence of secondary embolism was reduced from 30 per cent to 2.17 per cent and consider Homan's sign a valuable clinical adjunct.

Daily prothrombin determination in postoperative patients, as advocated in 1948 by Sandrock and Mahoney,[10] because of their value in predicting thrombotic complications, has been reviewed this year by McClure and his associates. Sandrock noted a sudden rise in the prothrombin level on the third postoperative day in several patients who either developed clinical thrombosis subsequently or received prophylactic dicumarol. McClure observed 12 instances of thrombosis in 179 patients, but in only six of these was there a warning from the prothrombin activity. Furthermore, thrombosis did not develop in 64 patients with high prothrombin levels. Results of tests for fibrinogen B (described by Lyons of Australia) were not of prognostic importance.

It is possible that instances of overdosage with anticoagulants and excessive lowering of prothrombin time may be controlled by the use of protamine sulfate in accordance with Allen's experiments on dogs at the University of Chicago. These points may aid in the reduction of postoperative thrombophlebitis and phlebothrombosis, especially in elderly people, and so lower further the mortality rate of

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prolonged traction or necessary operations on them.[10]

Freyberg and Levy[4] in an analysis of complications in patients with fractures of the hip found that preexisting diabetes, arteriosclerosis or hypertension did not compound the hazards to patients, although these diseases would have complicated any superimposed infection or vascular accident. They found pulmonary infarction in four patients with two deaths out of 29 patients who had complications in ten years. Allbright advises prophylactic use of estrogen or androgen against the osteoporosis in older women if long bed rest is contemplated. In these patients the porosis is not considered to be a disturbance of calcium and phosphorus metabolism, but as due to insufficient production of osteoid tissue.

The role of alkaline phosphates in osteogenesis has also come into prominence.[7, 8] It seems to be established that the enzyme alkaline phosphatase is concerned more with the formation of fibrocollagenous framework or matrix of the bone than the impregnation of this framework with calcific salts. Consequently, further research into the protein matrix of bone and other factors in the precipitation and fixation of bone salts is suggested to the bright young investigators of the Pacific coast.

In the clinicopathological field, attention must be directed to the reports of H. A. Thomas Fairbank of London entitled "An Atlas of General Affections of the Skeleton" printed in the recent British numbers of the *Journal of Bone and Joint Surgery.* These are well ordered and studied observations of a matured mind worthy of attention for "What's New in Orthopedics" and a stimulus for individual record-keeping through life by any surgeon.

Excision of the patella after various kinds of fractures is still a moot question, answered in part by Scott's[11] resume of 196 instances of fracture followed by 101 complete excisions and 33 partial excisions, a much higher percentage than anyone has hitherto reported. This is a very live subject and Scott's report was published only after the editorial board of the journal in which it was printed had subjected it to close scrutiny and severe criticism, and then on the basis that it was a provocative contribution. Undoubtedly there does follow considerable disability after many instances of complete excisions. Radical excision of joint malacia, however, either locally or by patellectomy, has been accepted as orthodox.

Additional new points concern reports on the treatment of poliomyelitis and fractures of the neck of the femur. In Steindler's[12] masterly remarks on the former, it is stated that the disease is not limited to the anterior horn cell although that is where the parenchymatous lesions are found, while elsewhere the lesions are glial or interstitial in character. Some of the lesions in the anterior horn cell also are reversible, unless the cell is destroyed. In that event the condition must be considered final. Therefore the principles learned from basic science laid down by Lovett 40 years ago make us cling to the use of rest and avoidance of stretch reflexes of the affected muscle or contraction of the antagonist. Along with this, immobilization of the paralyzed muscle is reduced to a minimum and weight bearing is allowed as early as possible. Prolonged recumbency is permitted only when spinal asymmetry threatens. Active movement in the form of a rational and purposeful program of muscle reeducation is advocated.

Fracture of the neck of the femur with sequences of aseptic necrosis of the head, arthritis of the hip and delayed unions is a subject of continuing study.[1, 13] Delayed weight bearing has finally become an acknowledged necessity if there is the slightest suspicion of aseptic necrosis of the head. Phemister[9] believes that drilling of the necrotic head with the insertion of transplanted bone pegs may prevent collapse and hasten the replacement of dead bone by new. Many patients thus treated must be studied to determine the final value of this suggestion.[1]

Changes in fracture nomenclature are under way. Committees have been appointed by several of the national surgical and orthopedic bodies to consider these first and finally to meet in joint sessions for adoption of more or less standard terms.[2] At its meeting in Boston, January 1949, the Committee on Fractures and Other Traumas of the American College of Surgeons voted unanimously to drop the meaningless terms "simple" and "compound" fracture and to use henceforth in all records and speech the descriptive terms "open" and "closed" fracture. This initial step in the program is worthy of consideration, as it will be extended to all printed matter.

Finally, new steps are being taken to revise the teaching of the subject of fractures. In the meeting of the committee just referred to Dr. Gallie of Toronto read a formal paper covering a subcommittee report on teaching in this important division of surgery, reviewing older methods, and calling attention to the lack of thorough preparation in anatomy, physiology and pathology as these subjects bear particularly on orthopedic surgery, under present systems of teaching. There has recently been a shift of the responsibility for this teaching from the surgical to the orthopedic faculty subdivisions, with resulting chaotic upset in the methods of instruction. The author discussed Dr. Gallie's paper, stressing the lack of coordination in the teaching of roentgenology and pathology and the overemphasis placed on operative treatment of long bone fractures in order to obtain a nice-appearing roentgenological film with little or no regard for the equally important functional and economic result. It appears now that very little undergraduate teaching on the subject of fractures can properly be given in the crowded medical curriculum, and that little only to senior medical students who may have a small amount of clinical experience and judgment. Soon all teaching on this subject will become graduate in type. If left in orthopedic hands, the teaching during the next 25 years will fall on the shoulders of men now holding residencies or fellowships in orthopedic surgery. And these men may not be fully prepared to teach the subject, in that they have not lived through the changes in treatment brought out in the last 30 years and may not be well enough grounded in the history of the development of treatment. This may not deter them from advancing, however, if they have enough preparation in pathology, backed by practical experience in the handling of large series of cases. Orthopedic teachers cannot be made overnight nor after a few months' experience in military service. They must have thorough grounding in pathology plus a background of experience which cannot be obtained from books.

Special training of nurses and certification for orthopedic nursing is now practiced in several locations. It should spread everywhere in the United States.

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QUESTIONS AND ANSWERS

Dr. Speed: "Do you think pediatricians could keep poliomyelitis patients out of the orthopedic-health department wards, iron lungs, and short coffins, if they would control the congestive inflammation in the anterior horns and work by early counter-irritation along the nape of the neck and skin of the spine in the early stages?"

My answer would be divided into two parts. The pediatrician must conform to the state law requirements covering the disposition of poliomyelitic cases, in addition to whatever local health measures may be added to the state law by local ordinance.

I cannot see that the application of skin counter-irritation would affect in the slightest way the destructive process in the anterior horn cells, any more than a plaster on the abdominal wall would have any effect on the progressive pathologic changes in an acute attack of appendicitis. Such ideas as this have been dead and buried for 100 years.

* * *

What's New in Aureomycin and Other Antibiotics

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ANTIBIOTICS, or, more properly, chemotherapeutics, have developed with great rapidity in the few years of their existence. For each anti-infective agent which has received clinical trial and may be deemed worthy of discussion in a brief review of this sort, hundreds have been tried and discarded as lacking in certain desirable qualities. Many others are at present in various stages of development, and newer and more potent drugs will surely appear.

In spite of the availability of chemotherapeutic drugs active against most bacteria and rickettsiae and several viruses, exact etiological diagnosis has become increasingly important. While keeping in mind the treatment of the sick individual as a whole, the physician must clearly realize that he is treating an infection due to a specific pathogenic microorganism and not merely a pathologic process. Thus the best treatment of pneumonia due to pneumococci differs from that of pneumonia due to M. tuberculosis or psittacosis virus. Likewise pyelonephritis due to Staphylococcus aureus must be treated quite differently from that due to A. aerogenes. Assiduous search for the etiological agent must be paramount in the proper management of any infectious process.

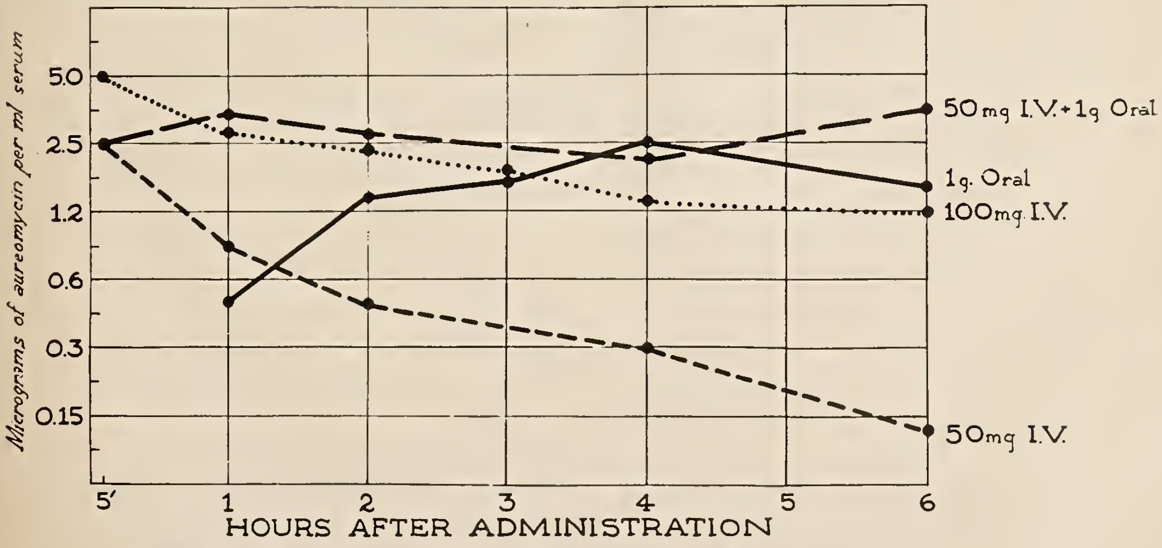
AUREOMYCIN

Aureomycin[14] is derived from *Streptomyces aureofaciens,* so-called because of its golden-yellow color. At present available commercially is the hydrochloride salt for oral use. The same purified salt will undoubtedly soon be introduced generally for intravenous administration. In addition, an ophthalmic ointment can be obtained for topical use.

Clinical Pharmacology. Aureomycin is absorbed rather slowly from the gastrointestinal tract. Although measurable amounts are detected in the serum after one hour, peak absorption is usually reached in two to six hours. Measurable blood levels may persist for eight to 12 hours after a single oral dose of 1 gm.[4] If oral administration of 1 gm. doses is continued at four- to six-hour intervals, gradual accumulation of aureomycin in the body occurs and serum concentrations in excess of 10 micrograms per milliliter of serum may be found after several days (Table 1).

Following the intravenous administration of 100 mg. an immediate peak serum concentration, usually in excess of that following the initial oral dose of 1 gm. is attained, followed by a gradual decline over a period of six to eight hours.[5] If oral and intravenous routes of administration are combined, immediate high serum levels are achieved and main-

TABLE I



Graph illustrating average serum concentrations of aureomycin following various intravenous and oral doses.

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tained. The optimum serum concentrations of aureomycin for the treatment of various infections is not known.

Intramuscular administration of aureomycin is both painful and inefficient, since only minimal serum levels are observed.[4] Aerosolization is followed in some instances by systemic absorption.[5]

Aureomycin appears in most body fluids,[5] although usually after a delay of many hours. Measurable concentrations may be detectable in the pleural fluid, joint fluid, and cerebrospinal fluid after more than 24 hours of administration. Aureomycin appears quickly in the bile and urine. It has been detected in gastric contents eight hours after an oral dose.

Aureomycin is excreted slowly and irregularly in the urine. Urine concentrations in excess of 1 mg. per cc. may be observed occasionally. Urinary excretion may continue for 24 hours following a single intravenous dose of 100 mg. of the drug.[5]

Anti-Infective Spectrum. Aureomycin is active *in vitro* against a wide variety of Gram-positive and Gram-negative bacteria[5] as illustrated in Table 2, as well as L. icterohemorrhagica and Borrelia recurrentis.[21] In addition, *in vivo* activity has been demonstrated against the rickettsiae of the typhus, Rocky Mountain spotted fever, scrub typhus, and Q fever groups, as well as the viruses of psittacosis, lymphopathia venereum,[49, 2] and primary atypical pneumonia.[16] This activity has been confirmed in almost all instances by successful clinical trial.*

Toxicity. Aureomycin has been demonstrated to have little toxicity for animals. In man the only significant toxic effect has been the occurrence of nausea with or without vomiting in over half the patients receiving 1 gm. doses every four or six hours.[6] This has been avoided, whenever necessary, by resorting to intravenous administration. The nausea may subside spontaneously in spite of continued therapy, or may be partly alleviated by the use of aluminum hydroxide gels and by the presence of food in the stomach before ingestion of the drug.

Dosage. Exact dosage requirements in various infections are not established. One gram every six hours by mouth appears adequate in most infections due to susceptible agents. One-half this dosage will probably prove sufficient in primary atypical pneumonia and urinary tract infections due to highly susceptible bacteria. In severe infections or infections due to relatively resistant pathogens, supplemental intravenous doses of 100 mg. may be given simultaneously with the first few oral doses. If oral administration must be avoided because of nausea or for other reasons, 100 mg. may be administered intravenously every six to eight hours. A convenient plan includes three intravenous doses during the day, supplemented by one oral dose at night.

Results of Clinical Trial. Aureomycin has been used in a wide variety of infectious diseases, and preliminary evaluation of it may now be made. Comparison with penicillin, streptomycin, and chloromycetin must await carefully controlled studies.

TABLE 2.—*Response to Aureomycin.*

HIGHLY SENSITIVE ORGANISMS (Most strains less than 0.1 micrograms per ml.):
- Staphylococcus aureus
- Beta hemolytic streptococcus
- Alpha hemolytic streptococcus
- Streptococcus fecalis
- Diplococcus pneumoniae
- Corynebacterium diphtheriae

MODERATELY SENSITIVE ORGANISMS (Most strains less than 1.0 micrograms per ml.):
- Escherichia coli
- Aerobacter aerogenes
- Eberthella typhosum
- Salmonella (various types)
- Neisseria meningitidis
- Klebsiella pneumoniae
- Hemophilus influenzae
- Shigella paradysenteriae

RESISTANT ORGANISMS (All strains more than 3.5 micrograms per ml.):
- Proteus vulgaris
- Pseudomonas aeruginosa

In general, results of aureomycin therapy in typhoid fever and salmonella infections have been disappointing.[18, 29, 6, 19] Occasional patients respond in a dramatic fashion, but in the majority of patients only moderate suppressive effects or none at all are the rule. The stool culture may be temporarily rendered negative in the typhoid carrier state, but permanent beneficial effect is exceptional.

Aureomycin appears to be a highly effective agent in the treatment of acute brucellosis.[45, 29, 6, 19] Fever and bacteremia are usually quickly abolished, but relapses may occur in a significant number of patients. Small initial doses, as recommended by Spink,[45] should be used for the first three days of treatment to avoid Herxheimer-like reaction. Treatment must be carried out for ten days to two weeks. Experience in the treatment of chronic brucellosis is too limited to permit evaluation.

As is the case with other chemotherapeutic agents, aureomycin rarely produces permanent sterilization in infections of the urinary tract where severe anatomical abnormalities exist.[18, 33, 6] Most patients without obstruction of the urinary passages respond favorably to aureomycin therapy, with the exception of those in whom the infecting organism is a resistant strain of Ps. aeruginosa or Pr. vulgaris. In almost all cases, regardless of infecting organism or anatomical abnormality, marked suppression of the infection may be expected. Since the development of aureomycin resistance is uncommon, this temporary suppressive effect may be utilized to tide the patient over critical periods of disease in hopes of removing obstructive lesions at a later date.

Aureomycin exerts a beneficial effect on the course of pneumococcal pneumonia,[18, 36] and may be considered an alternative to penicillin in this disease. Results in other types of bacterial pneumonia and in lung abscess are as yet impossible to evaluate.

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*References: 6-9, 11-13, 18, 19, 25-27, 29, 35, 37, 38, 45, 53, 54.

Acute gonorrheal urethritis responds favorably to aureomycin in most cases,[18] but the results appear definitely inferior to those of penicillin. Some types of bacterial meningitis may be amenable to aureomycin therapy,[29] although there is not yet sufficient evidence to permit evaluation.

Preliminary experience in pyogenic infections of the peritoneal cavity is promising[29, 6] as might be expected from an agent active against both Gram-positive and Gram-negative organisms. Limited trial in chancroid lesions likewise warrants further use of this agent. Pyodermia and erysipelas also appear to respond favorably.[29, 6]

Although aureomycin is highly active against streptococcus fecalis *in vitro*, results in the treatment of subacute bacterial endocarditis that is caused by penicillin-resistant strains of this organism have been disappointing. Although cures[29] have been reported, two patients who were treated relapsed after the termination of therapy, although the initial response had been satisfactory.[6]

In view of the experimental evidence of Heilman[21] that aureomycin is highly active against Leptospira icterohemorrhagica, the apparently favorable response in one patient[6] suggests that aureomycin may prove to be the treatment of choice in Weil's disease. Aureomycin has been widely used with success in the treatment of primary atypical pneumonia,[25, 37, 19, 29, 6, 36, 34] although relapses may occasionally be encountered after the discontinuance of therapy. Three patients suffering from psittacosis have responded favorably to treatment[6] with aureomycin after they had not improved under therapy with repository penicillin. Aureomycin appears to have no effect on the course of coccidioidal infection.[6] Preliminary reports suggest that aureomycin exerts a beneficial effect on lymphopathia venereum.[53]

Very favorable results with aureomycin have been reported in the treatment of typhus fever,[38] and of Rocky Mountain spotted fever.[12, 35] Although most patients suffering from Q fever seem to respond well to this drug, failures do occur.[27, 6]

Remaining to be evaluated is the role of aureomycin in the treatment of herpes simplex and herpes zoster. No beneficial effects have been noted in varicella, infectious mononucleosis, erythema multiforme, Hodgkin's disease, acute leukemia, or carcinoma.[6]

The principal activity of aureomycin is bacteriostatic rather than bactericidal. In this respect it is reminiscent of the sulfonamides. The immune mechanism of the host may be of great importance in the final eradication of infection.

PENICILLIN

Of particular interest as regards penicillin is the development of a repository penicillin-procaine complex with 2 per cent aluminum monostearate which will produce measurable blood levels as long as 120 hours after the injection of 300,000 units.[34] While this is a welcome simplification of the care of the patient receiving penicillin, caution in using this material in severely ill patients is advisable. Although serum levels are prolonged, peak concentrations are generally lower than those following administration of more rapidly absorbed preparations.

Of equal interest is the convincing evidence that beneficial clinical results may be obtained by infrequent intramuscular injections of aqueous solutions of crystalline penicillin.[1, 48] Although serum levels may not persist beyond three to seven hours after administration, significant amounts are present in the tissues for longer periods of time. Furthermore, organisms experimentally exposed for brief periods to concentrations of penicillin which would ultimately be lethal are intoxicated so that multiplication does not occur for several hours after their removal from contact with penicillin.[1] Thus such acute infections as pneumococcal pneumonia respond favorably to between 100,000 and 300,000 units administered every eight to 12 hours. In spite of the feasibility of these short-cuts in many cases, patients who are desperately ill should be treated with very large doses at frequent intervals so that maximal concentrations may diffuse into infected foci as soon as possible.

STREPTOMYCIN

The development of dihydrostreptomycin has accorded streptomycin a secondary role. The reduced derivative is as effective clinically as streptomycin in all types of infections and is considerably less toxic.[33, 22, 23] Eighth nerve toxicity is occasionally observed also with dihydrostreptomycin, but usually only when the drug is given in large doses and for long periods of time.

While the problem of the acquisition of resistance to streptomycin is far from solved, since organisms resistant to streptomycin are equally resistant to dihydrostreptomycin, certain promising developments have been noted. The simultaneous use of para-aminosalicylic[55] acid, and possibly promizole,[28] appears to inhibit the appearance of resistant strains of tubercle bacilli. Furthermore, recently developed substituted streptomycins have been found to be active *in vitro* against organisms resistant to streptomycin and dihydrostreptomycin. Gram-negative organisms resistant to streptomycin are usually quite susceptible to aureomycin, chloromycetin, or polymyxin.

CHLORAMPHENICOL (CHLOROMYCETIN)

Chloromycetin was originally derived from *Streptomyces venezuelae*[17] but has more recently been synthesized. Its anti-infective spectrum generally resembles that of aureomycin, although it exhibits considerably less activity against the Gram-positive cocci *in vitro.*[29] Chloromycetin is highly active against most Gram-negative organisms *in vitro* and against the rickettsiae *in vivo.*[39] In addition, activity has been demonstrated against the spirochetes, Borrelia recurrentis[44] and Treponema pallidum,[42] although activity against the latter is not great.

Chloromycetin is rapidly absorbed from the gastrointestinal tract and is excreted in the urine. No significant toxic effects have been noted. Initial doses of 50 mg. per kilogram of weight appear to be effective, and the dosage may be reduced after clinical improvement occurs.

Although clinical data on results of treatment with chloromycetin are scanty, good results have been reported in typhus fever,[40] scrub typhus,[41] typhoid fever,[26, 51] primary atypical pneumonia,[36] bacterial pneumonia,[36] gonorrhea,[42] brucellosis,[26, 52] and infections of the urinary tract due to Gram-negative organisms.[10] Chloromycetin appears to be definitely superior to aureomycin in the treatment of typhoid fever,[26] although relapses have been encountered in a significant number of cases.

POLYMYXIN

The polymyxins, of which there are several, are derived from *B. polymyxia.* Polymyxin A is also known as aerosporin. Polymyxins A, B, and D are cyclic polypeptides. All are extremely active against Gram-negative organisms with the notable exception of Pr. vulgaris and the Neisseriae.[46] Although polymyxin is considerably more bactericidal than streptomycin, aureomycin, and chloromycetin against Gram-negative bacteria,[3] it exerts a significant nephrotoxic effect in animals and human beings which will probably limit its use to desperate infections which are not susceptible to other chemotherapeutic agents.[29] The total daily dose of polymyxin ranges from 3 to 6 mg. per kilogram of weight divided into eight intramuscular injections. Beneficial effects have been observed clinically in pertussis,[47] bacteremias due to Ps. aeruginosa[33] and other bacilli, and urinary tract infections due to susceptible organisms.[29]

BACITRACIN

Bacitracin[24] is derived from *B. subtilis.* It is active against the Gram-positive cocci, the Neisseriae, the Clostridiae, C. diphtheriae, T. pallidum, and E. histolytica. It is not active against Gram-negative organisms. It is neither absorbed nor inactivated in the gastrointestinal tract, and thus depresses the Gram-positive cocci and Clostridiae when administered orally.[32] It is absorbed following intramuscular injection and is excreted slowly. Severe renal lesions may be observed in mice, rats, and man after intramuscular administration of this drug. Bacitracin manufactured by surface culture[43] appears to be less toxic than that made by deep-vat culture, so that side-effects may be eventually minimized.

Beneficial effects have been reported from the topical use of solutions and ointments containing 10 to 100 units of bacitracin per cc.[31] These infections included furuncles, ulcers, and chronic osteomyelitis. Favorable results were noted in about 70 per cent of "surgical" infections treated with bacitracin administered intramuscularly.[32] Because of its synergistic action with penicillin against T. pallida, it has been used experimentally in the treatment of syphilis,[15] but it is too early to evaluate the results.

DISCUSSION

While laboratory and clinical studies on these and other antibiotics have gone on at a bewildering pace, the approach has been principally the empirical one of trial and error. Lagging behind have been investigations into the mechanisms of action of chemotherapeutic agents. Although the principle of metabolic competition was first established in regard to the sulfonamides by Woods,[50] only fragmentary evidence is available to explain the action of penicillin and streptomycin. This subject has been ably reviewed by Goldstein.[20] A new era in chemotherapy will appear when drugs are designed specifically to interfere with the vital metabolic functions of the microorganism and, perhaps, the neoplastic cell.

Drs. Henry B. Bruyn, Jr., and Gordon Meiklejohn collaborated in the clinical and pharmacological studies on aureomycin.

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QUESTIONS AND ANSWERS

Dr. Brainerd: I have two questions on chronic brucellosis. One is: "What is the effect of aureomycin on chronic brucellosis?" The other is: "Why is chronic brucellosis more resistant to therapy than acute brucellosis?"

I don't know for certain what the effect of aureomycin is in chronic brucellosis. A number of cases have been treated but not followed a long enough period of time to tell. I think unquestionably, in many cases there is some effect. Whether it is lasting or not, I think is a very crucial question that time alone will settle.

Question: "Rectal administration of capsules of aureomycin has been suggested. Is this effective?"

We have not completed the studies on rectal administration. It would not be surprising that it is absorbed from the rectum. However, the pH of the solution is 2.5. This is exceedingly irritating. If is buffered, it may deteriorate rapidly. These are practical objections to rectal administration. However, they may be surmountable.

Question: "To what other antibiotic in addition to streptomycin is Friedlander's bacillus susceptible?"

It is susceptible to aureomycin, chloromycetin and polymyxin.

Question: "Have there been reports of anaphylactic reactions to penicillin?"

Yes, there have. They are exceedingly rare. Most reactions, however, are not acute or serious, but merely a nuisance, often resembling serum sickness.

Question: "Are there any antibiotics of value against coccidioidal infections?"

There is one antibiotic which is effective against mycotic organisms. It is an actidione which is still in the early experimental stage. It has been used some in coccidioidal infections with some suggestive beneficial results in dogs. Its toxic effects in man are not fully worked out. However, it is of considerable promise in mycotic infections in general.

Question: "Is it safe to give aureomycin at the patient's home?"

Yes, I would say it lends itself particularly to administration at home, since the only toxic effect of any consequence is nausea and vomiting, and this is rarely serious. It could be given by mouth, which is a great advantage.

Question: "Has aureomycin been used in the treatment of Reiter's disease, and if so, with what results?"

Finland reported one case of apparent Reiter's disease which he felt was benefited to some degree by aureomycin. I have treated one patient—I was not certain what he had was Reiter's disease—without any effect. There is some animal evidence which would suggest that there is some activity against the organism.

Question: Does aureomycin act by producing basodilatation?

I think that, by and large, the physiological effects of all the antibiotics are almost nil. Their activity is, of course, quite demonstrable in the test tube where there can be no physiological effect other than the action on the affecting organism. However, that does not minimize the importance of the immune mechanism of the body. In the final abolition of pathogens from the body, all chemotherapeutic agents are probably principally bacteriostatic rather than bactericidal, and the immune mechanism of the body is very important in the eradication of infection.

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What's New in Gynecology

James C. Doyle, M.D., *Beverly Hills*

PROGRESS has been recorded recently in all phases of gynecology, diagnostic, therapeutic and surgical. The discoveries and subsequent application in chemotherapy and antibiotics have been of an inestimable value. Particularly has the management of acute and subacute pelvic gonorrheal infections been affected. Patients with such infections receive 100,000 units of penicillin intramuscularly every three hours for 24 hours; 50,000 units every three hours thereafter, as warranted. Not infrequently the author further prescribes a sulfonamide preparation (triple), 1 gm. three or four times a day, combined, of course, with the usual medical care.

Although it is too early to evaluate the results, the author has used streptomycin in the treatment of one patient with pelvic tuberculosis. Dihydrostreptomycin,[4, 9, 10] a newer and less toxic form, was given. The patient, a 17-year-old Negro girl with a past history of pleural effusions, was given 0.5 gm. twice daily for ten days prior to and for 20 days following operation. When bilateral tubo-ovarian masses (6 to 8 cm.) were removed along with the uterus totally, extensive peritoneal and visceral tuberculous implants were noted. Two gm. of dihydrostreptomycin in saline was left in the peritoneal cavity prior to closure. Convalescence has been afebrile and satisfactory to this time.

LYMPHOGRANULOMA VENEREUM

Of interest to the gynecologist is a new antibiotic, aureomycin, described first in July 1948.[2] Although published reports are few, preliminary studies by Greenblatt[7] and others indicate aureomycin to be highly effective against the lymphogranuloma venereum group of diseases — benign rectal stricture, buboes and proctitis. Further, *in vitro* studies seem to show bacteriostatic or bactericidal activity against a wide variety of Gram-positive and Gram-negative bacteria, as well as against penicillin-resistant and streptomycin-resistant organisms. Oral use is recommended with a suggested dosage of 25 to 100 mg. per kilogram of body weight daily, according to the severity and type of infection.

BARTHOLINIAN ABSCESS

The author has aspirated Bartholinian abscesses with an 18-gauge needle on the mucous membrane side, following application of an aqueous solution of zepherin to the skin. The purulent fluid is replaced by 300,000 units of penicillin in saline solution (8-10 cc.). In a small series, observed about six months, surgical intervention has been avoided. As infection not infrequently coexists elsewhere, 500,000 units of penicillin is also given. Goldberger[6] and Lapid reported equally successful results.

VAGINAL THERAPY

Occasionally before, and frequently after operations involving the vaginal canal, the author has given the patients allantomide cream (sulfanilamide 15 per cent, 5 per cent lactose, buffered to pH 4.5 with lactic acid and allantoin.) One-half the contents of an applicator is expressed through a tube into the vagina daily. It is felt that the acid pH stimulates healing, while the sulfanilamide decreases incidence of infection. As an office procedure, this is recommended following cautery of the cervix. Patients have noted a welcome freedom from odor while the cream is being used. Although the reports[19] have not been favorable, the author has had particularly gratifying results with this medication in treating vulvovaginal mycoses due to candida albicans, but results with it against trichomonas have not been as successful as those reported by Parks.[19] Discontinuance has rarely been necessary because of sulfa sensitivity.

SENILE VAGINITIS

The treatment of senile vaginitis has been considerably simplified by the development of an estrogenic cream called Premarin, suitable for vaginal injection. By this method the mucous membrane is coated with a cream, affording an almost immediate healing and soothing effect. It is superior to suppositories, and oral medication is not necessarily needed. The side-effects frequently noted with synthetic products have not occurred.

INTRACTABLE PRURITUS VULVAE

Pruritus vulvae, often as disconcerting to the physician as to the patient, frequently occurs. It has been variedly attributed to many causes. Hill[8] suggests that in 75 per cent of cases it is due to neurogenic or functional causes; in 15 per cent to lichen sclerosus et atrophicans, kraurosis with or without leukoplakia; and in the remaining 10 per cent is caused by diabetes, infections caused by trichomonas and fungi, and allergic reactions to drugs and food. Complete study may be necessary and consultations sought before a diagnosis is established. The treatment may be protracted and and ineffectual. The patients often go from physician to physician. Efforts are directed toward the elimination of known etiological factors, for example, trichomonas and

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monilia. Because of constitutional inadequacies in patients with the disease, it is imperative that the patient-physician relationship be particularly harmonious and understanding.

Many surgical and roentgenological methods have been tried repeatedly without success. The author has used a method decribed by Reich,[20] consisting of injection of a substance, Zylacain,* with benefit to 58 patients. Three patients were reinjected within six months, resulting, as far as the author knows, in permanent relief. In one case the method was a complete failure. Two and one-half cc. of Zylacain solution is injected across the mons pubis and 5 cc. under each labium major (in the fatty subcutaneous tissue) and across the posterior fourchette between the anus and vagina. The author has doubled these amounts with no unfavorable sequelae. The rationale of this method of treatment presumably lies in a temporary interruption of the nerve pathways.

SMEAR DIAGNOSIS OF CANCER

The diagnosis of cancer has been facilitated by a new technique originated by Papanicolaou,[16, 17, 18] continued by Shorr[23] and Traut. The clinical application was quickly foreseen with consequent rapid expansion. This work is based on the premise that cancer of the female generative tract sheds its cells early and these may be collected, stained and studied.

The chief value at this time would appear to be a screening method for a large portion of our population, supplementary to well established and proven diagnostic tests such as multiple biopsies and curettage. It is agreed that the smear test should be encouraged in the semi-yearly or yearly examinations. Hope for an increased rate of cures lies in detecting the preclinical phase of the disease, but the limitations of the procedure are growing increasingly clear and the abuses becoming apparent. For instance, hysterectomy is not justified on the basis of a positive smear. In the absence of a known lesion, time can be taken for a recheck of the smear, possibly by other cytologists; moreover, examination of tissue obtained by biopsy, conization and curettage should be confirmatory, before radical measures are instituted.

Finally, it should be stressed that this is only another diagnostic aid, not to supplant a complete history and visual and palpatory examinations of the pelvis. The most important facet is interpretation of the smears, wherein special training, with an infinite degree of patience, is essential.

CARCINOMA IN SITU

The management of intra-epithelial carcinoma of the cervix, a comparatively rare lesion, has been radically changed. Over half of the patients with this disease who were studied by Te Linde[25] and Galvin[5] had some type of irregular bleeding, more commonly post-coital spotting, but history of it was elicited only by pointed questioning. Otherwise the patients were asymptomatic.

During the last few years, a new approach to the diagnosis and management of this early malignant process has resulted from the work of Te Linde and Galvin. Their substantiated belief is that cancer of the cervix begins in the basal layer of the portio vaginalis and that slight changes in this layer may be the precursor of the intra-epithelial cancer. As most cervical cancers begin at the junction of the stratified squamous with the columnar epithelium, biopsies should include this junction. In this preclinical group the Papanicolaou smear would be particularly applicable.

A new treatment, recommended by Te Linde and Galvin, consists of total hysterectomy and removal of the parametrium for 2 cm. on either side of the cervix, plus a generous cuff of the vagina. They suggest preoperative placement of ureteral catheters and caution that great care is necessary to preserve the ureteral blood supply, as damage to it may cause fistulas. Some observers have questioned the wisdom of conserving an ovary as is sometimes done when this procedure is carried out in a young woman. A few more years will undoubtedly provide the answer. Among 67 patients operated upon between 1940 and 1948 there have been no recurrences to date and all are living.

This procedure is done only in the case of microscopic cancer. If the lesion can be seen by the naked eye, radiation is indicated.

The treatment of recognizable cancer of the cervix is by radiation; operation is restricted to a small percentage of young, good risk, thin patients, with limited metastases. Largely through the efforts of Meigs,[14] Taylor,[24] Morton,[15] Martzloff[13] and Carter,[1] a renewed interest in the radical Wertheim[26] treatment of carcinoma of the cervix has developed. Meigs' reasoning for radical operation is based on these points: One, that removal of the cervix eliminates the possibility of recurrence in it; two, that certain cervical cancers are radioresistant (adenocarcinoma-mucoid); three, that operation damages the bowel less than does radiation; four, that lymph node metastases are in some cases more likely to be cured by operation than by radiation. The operation is a formidable one which demands the ultimate in surgical skill.

STRESS INCONTINENCE

For urinary incontinence in the menopausal period, Salmon[21] and his co-workers reported favorably on vaginal suppositories containing stilbestrol. The same hormone was used by veterinarians to overcome incontinence in spayed dogs.

An entirely new development is Kegel's[12] treatment of urinary stress incontinence by exercises to strengthen and reeducate weak perivaginal and periurethral sphincter muscles. Studies with a "perineometer" convinced Kegel that congenital weakness of neuromuscular structures of the perineum was the causative factor in many cases. He found that in 70 per cent of 200 women complaining of poor urinary control the condition was caused by muscular dysfunction of a degree not requiring operation for correction. "All [of the 70 per cent] responded to muscle reeducation in two to six weeks," he reported.

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*2 per cent procaine, 5 per cent benzylalcohol in oil, prepared by Abbott Laboratories.

CULDOSCOPY

Visualization of the pelvic viscera through the posterior vaginal wall by means of an instrument is known as culdoscopy. According to Decker[3] indications for use are: In establishment of correct diagnosis when all other aids have been exhausted (as in possible ectopic pregnancy), in locating ruptured bleeding corpus luteum cysts or follicular cysts, in search for the cause of vaginal bleeding if results of conventional pelvic examination are vague or indefinite, in some sterility studies, in ruling out small ovarian tumors, cysts, pelvic endometriosis, or pelvic tuberculosis. Use of the instrument is contraindicated in the presence of such local abnormalities as abscess or inflammatory processes involving the culdesac, fixed retroposition of the uterus and acute infections of the vagina. It is also contraindicated for patients with systemic (i.e. decompensated) heart disease or for those who are so debilitated that the knee-chest position would be inadvisable. There have been no unfavorable sequelae to use of the instrument in experienced hands.

PREMENSTRUAL TENSION

Characteristically the symptoms of premenstrual tension simulate those of the menopause, the foremost being nervousness, irritability, tension, headache and depression. Of less frequent occurrences are hot flashes, vertigo and insomnia. Although some physicians give estrogenic substances for relief of the condition, this seems ill-advised in view of the concept that too much estrogen may already be present during this period. A suggested treatment is androgen, 80 to 100 mg. a month in divided doses, but any prolonged use of this substance should be discouraged. The author's recommendation is progesterone, 10 mg. tablet once or twice daily, and ammonium chloride, 0.5 gm. three times daily, for ten days prior to menses. Occasionally it is advisable to restrict intake of sodium chloride. Results with this medication have been exceedingly satisfactory.

BASAL TEMPERATURE

Helpful in ascertaining the time of ovulation is the rectal temperature, taken prior to arising daily and recorded graphically. A slight fluctuation is noted from the first day of menstruation to ovulation, but when ovulation takes place the temperature drops by ½ to 1 degree or more. The following day a rise of ½ to 1 degree occurs and that level is maintained until the beginning of menses. Should pregnancy ensue, the temperature remains elevated.

NEW SURGICAL RECOMMENDATIONS

In correcting post-hysterectomy prolapse of the vagina, Shaw's[22] method of utilizing the anterior rectus fascia as strips, threaded back and down following the course of the round ligaments, with fixation to the vagina, gives a satisfactory support. In a case of prolapse of the vaginal vault observed by the author, in addition to the Shaw procedure the sacro-uterine ligaments were approximated and fixed to the vault. After eight months, no recurrence is evident. For correction of prolapse of the cervix, the author has observed good result with vaginal trachelectomy.

Judd[11] has recommended intra-abdominal repair of moderate sized cystoceles when total hysterectomy is necessary. The pubocervical fascia is approximated to the sacro-uterine ligaments and the vaginal vault. This procedure is ideal in the presence of small cystoceles without incontinence, for otherwise the anterior plastic operation would have to be accomplished prior to the laparotomy.

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QUESTIONS AND ANSWERS

Dr. Doyle: There is a question about the Bartholinian abscess treatment: "How long after aspiration and penicillin treatment of these abscesses have you followed up these cases?"

These cases have been observed around six months. The cases now under observation at General Hospital have only been of recent issue. There have been one or two recurrences. It is possible that if patients in the acute stages were watched a few days longer, and reinjected with penicillin, operation could be avoided. It is not an entirely new procedure. It has been used also in pelvic abscesses, and other abscesses of the chest and elsewhere that had only to be reached with a needle.

* * *

What's New in Surgery

Nathan A. Womack, M.D., *Iowa City, Iowa*

MUCH of that which is new in surgery eventually will prove not to be true, and much of that which apparently is true will be found not to be new.

With the increase in knowledge that has come about during the past few years regarding homeostatic mechanisms in the body, the domain of surgery has been extended considerably insofar as the successful removal of viscera is concerned. The correction of obvious physiologic defections in the cardiovascular system, not by amputational methods but by anastomotic procedure, has been a brilliant achievement during recent years. This again is based upon intimate information concerning basic physiologic mechanisms. The same basic approach relating to the nervous system and the alimentary tract has been most fruitful in its product. All of these achievements, dramatic as the end results may be, are based upon sound and intimate understanding of functional mechanisms in the body.

This presentation will not attempt a review of the important operative achievements in surgery during the last year but will be limited to another phase of endeavor in which the surgeon may play an important role in the understanding of disease. The surgeon, like the practitioner in other fields of medicine, is fundamentally an applied biologist. He must understand those abnormalities which take place in the human body, for by so understanding them he often can develop methods by which these aberrations can be remedied. It is impossible for him to understand such abnormalities in structure and in function of the body unless he first has a clear conception of normal structure and of normal function, not only of the body as a whole but of its component tissues and their component cells.

This is no easy task to ask of anyone. Much of the normal is as yet not fully understood. It is the effort to appreciate as many mechanisms as possible that makes it encumbent upon surgeons to adopt those techniques and those principles that have been and are being developed by students of the fundamental sciences to which surgery is ancillary.

The surgeon is always a pathologist. Whether he is conscious of this fact or not makes no difference. Whether he wishes to utilize the usual methods of making a diagnosis such as inspection or palpation as used at the operating table or whether he has carried this to a more detailed correlation with microscopic studies also makes no difference. It is impossible for him to suggest with any degree of accuracy a therapeutic procedure at the operating table unless he has decided the nature of the condition confronting him. Pathology then becomes an essential element in surgery and not a thing apart. Pathology is not a discipline which the surgeon studies in order to pass his board examinations or in order to appear erudite. Pathology is the study of disease. It is an absolutely essential part of the surgeon's armamentarium that he study disease and that he understand its fundamental implications.

The surgical pathologist likes to think that he studies the tissues of the living, whereas the classical pathologist studies the tissues of the dead. He often forgets that there is but little difference between the study of the dead tissues of the living and the tissues of the dead. He often forgets that this method of study which he uses for a microscopic appraisal of a lesion carries with it many artefacts. Following its removal, the tissue is immersed in a fluid that precipitates most of its protein structure. Again, the fat is dissolved. This is followed by a procedure in which most of the water-soluble elements are removed. The thin section of tissue then is stained with various types of dyes that owe their action to physical and chemical affinities to various portions of the cellular architecture.

This is not to decry this method of study. It has given us much in times past by the very constancy of the artefact. It has afforded us the scaffolding upon which the classification and much of the present understanding of disease has been built. At times, however, it has resulted in much rigidity, insofar as classification is concerned, and we all have been guilty of becoming so bemused by semantics that sometimes the goal of true understanding of disease has been neglected.

Several years ago the author began a clinical study in which small amounts of liver tissue for microscopic study were removed from patients with liver disease of an unknown nature. Frequently confronted were patients who gave a history suggestive of hepatic damage. The outstanding complaints were jaundice of a painless type and either constant or intermittent weakness, and usually an enlargement of the liver. Clinical liver function tests would show evidence of liver damage or else the interpretation of them would be equivocal. It was found that in many of these patients biopsy of a small amount of liver tissue could be done without particular hazard. As a rule, procaine infiltration anesthesia was used and as much as possible of the upper right quadrant examined with the palpating finger. A small area of the liver was exposed to view, and a wedge of tissue removed for microscopic examination. With this procedure, it was possible to be certain that there would be no bleeding or leakage of bile after the biopsy. Furthermore, it was often possible immediately to determine the presence or absence of stone or of cancer in the liver or its vicinity. The microscopic examination of this tissue often was most revealing.

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By the use of suitable staining techniques, such diagnoses as primary tuberculosis of the liver, carbon tetrachloride poisoning, amyloid disease, primary parenchymal cancer, or cancer superimposed upon cirrhosis, were at times established. The largest group of patients, however, fell into an indiscriminate classification of so-called toxic hepatitis. Some of these lesions were acute, and others were associated with scar tissue and cirrhosis formation. In striving to elucidate further the exact mechanism concerned in the production of this type of liver damage, it was found impossible, with the staining techniques employed, to progress beyond such a vague classification.

Because of the fact that the function of a cell is the resultant action of its various enzyme systems, it became apparent that the classical microscopic techniques must be complemented by an appraisal of the functional state of as many of these enzyme systems as is possible.

Many techniques for this study were available, many more than have been utilized at the present writing.

The incubation of fresh tissue in a substrate containing a material which, when acted upon by certain enzymes, results in the deposition of stained material within the cytoplasm of the cell, is a method which has been in use in the study of normal cells for a considerable length of time. By this method it has been possible to determine the presence or absence of many of the vitamins. By the use of such a technique, it also has been possible more recently to determine the presence or absence of alkaline phosphatase, acid phosphatase, esterase, and lipase, as well as other of the enzymes. Both of these methods, to a large extent, are qualitative in type. But the problem in the study of the damaged liver cell was not only a qualitative one but also a quantitative one.

In order to study the tissue in a quantitative manner, various techniques of biochemical analysis as related to some of these enzyme systems, are being employed. This work is too recent to speak of statistically or authoritatively. It, however, has progressed far enough to allow encouragement of its continuation. The first study to be employed has been the determination of the amount of oxygen uptake in fresh hepatic tissue removed at operation by the use of the methods begun by Warburg. It was found that hepatic cell respiration, for instance, was interfered with considerably. In 15 successive patients with hepatic damage, either early or associated with cirrhosis, it was found that the oxygen uptake was diminished at least 50 per cent and yet the liver was able to carry on its over-all function adequately—adequately in the sense that the patient eventually showed considerable improvement.

It would seem that the more information of this type that is acquired, the more accurate can be the observation of the manifestations of disease; the greater the possibility for clear focus of attention on the site of tissue damage, the more likely that the cause can be ascertained and this particular type of damage thereby prevented. The author has no illusions as the difficulties involved. To a biochemist, these difficulties perhaps are far greater than envisaged by a surgeon. Yet this is a function in which the surgeon will play a great role in the future. He participates, because he excises the material for biopsy. It is one particular way in which surgery is adding to the new.

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QUESTIONS AND ANSWERS

Dr. Womack: My questions centered around the comparison between the use of the needle in biopsy of the liver and the use of the incision in exposure. It's an old question. The internist, by custom, has been excluded from using the scalpel. He has had to use the needle, and it is the surgeon who has always used the knife.

Fundamentally, we're concerned with the study of tissue. If one can get an adequate amount of tissue with a needle, then well and good. And some have developed this technique to a very amazing degree.

As to the method of choice, several factors enter into decisions. Tissue removed by needle is sufficient only for microscopic examination, and the tissue is often distorted.

On the side of obtaining a biopsy with a scalpel, here is an example of why I prefer actual inspection of the liver: Too often, I've found that what I had interpreted in a clinical evaluation as primary liver damage was a silent stone in the common bile duct. When such a situation is found, one can go ahead and enlarge the exposure and do a definitive operation. Such diagnoses have been made after needle biopsy has revealed liver necrosis secondary to obstruction.

* * *

The Effect of Vitamin B_{12} on the Anemia and Combined System Disease of Addisonian Pernicious Anemia

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SUMMARY

The effect of the parenteral administration of vitamin B_{12} has been observed in eight patients with Addisonian pernicious anemia.

Vitamin B_{12} in initial doses of 50 micrograms or 25 micrograms induced satisfactory reticulocyte response and a return of erythrocyte count to within normal range in 60 days.

In only two of the patients were secondary reticulocyte responses induced on a second injection of vitamin B_{12}.

Concurrently with the hemopoietic response, the bone marrow changed from megaloblastic hyperplasia to normoblastic distribution.

The paresthesias associated with combined system disease as well as disturbances in position sense and locomotor function may be entirely relieved or greatly diminished following injections of vitamin B_{12}.

Maintenance injections of vitamin B_{12} may be from 30 to 50 micrograms at intervals of one month, the amount depending upon the individual case.

Vitamin B_{12} may be used without untoward symptoms in patients previously sensitive to liver extract.

In 1926 it was demonstrated by Minot and Murphy[5] that whole raw liver was effective in the treatment of Addisonian pernicious anemia. Soon after this, a search was begun by investigators to determine the factor in liver responsible for its effects on the hematopoietic and neurologic systems. Cohn[3] in 1927 produced an extract of liver called "Fraction G" which became available for oral use. This was a water soluble material obtained from protein precipitation. The early preparations contained histamine-like substances which limited their parenteral use in patients because of their blood pressure reducing effect. In 1930 a more highly purified product was produced which was first called crude liver extract and contained one or two units per cc. of extract.[6] Within the past ten years, with the development of more highly refined techniques, such as salting-out processes, and reducing extracts to temperatures of an extremely low degree, a product of higher concentration has been produced containing 10 to 15 units per cc. of extract.[7]

The chemical formula of liver extract is not known. West and others, after many years of study, concluded that it was probably a polypeptide. Irrespective of this paucity of knowledge concerning its chemical structure, there is evidence suggestive of a close relationship between liver extract and the vitamin B complex. Wills,[14, 15] Wintrobe,[16] and others have shown that in certain macrocytic anemias, large doses of yeast, a substance rich in vitamin B components, will induce a reticulocyte response followed by an increase in the number of erythrocytes in the circulating blood. Studies undertaken in our laboratory have shown comparable results. However, with the isolation and synthesis of each new member of the complex their ineffectiveness in the treatment of pernicious anemia have been established.[2] It is to be observed in Figure 1 that no increase in production of blood occurred after the administration of riboflavin, nicotinic acid, or synthetic vitamin B_6, but that a response occurred when the patient was fed 45 gm. of yeast daily.

The isolation and synthesis of folic acid (Pteroylglutamic acid), a result of the cooperative efforts of Dr. Yellapragada Subbarow, other investigators and the research facilities of the Lederle Laboratories, furnished, for the first time, a pure substance which could apparently produce a hematologic and clinical remission in Addisonian anemia. Although hypotheses have been developed as to the probable physiologic mechanism through which folic acid works, its exact role in hematopoiesis is still a mystery.

One of the reasons for failure to advance knowledge concerning the identity or specificity of liver extracts and related substances has been the lack of any chemical or biological test which might serve to determine the potency of the fractions being investigated. This has been accomplished only by administering material to patients with Addisonian pernicious anemia who are in relapse. Experimental data is now accumulating to show that a bacterium may be used to supply this deficiency. In 1948 Shorb[9] reported the finding that Lactobacillus lactis Dorner, when cultivated in a suitable basal medium, grew when refined liver extract was added to the menstruum. When assays of various commercial liver extracts were carried out by determining the minimum quantity that would support growth, Shorb found an almost linear relationship to the unit potency of the extracts. Recently, Rickes[8] and his associates have isolated a crystalline substance from liver extract in the form of small red needles and Shorb,[10] who assayed its potency value for L. lactis

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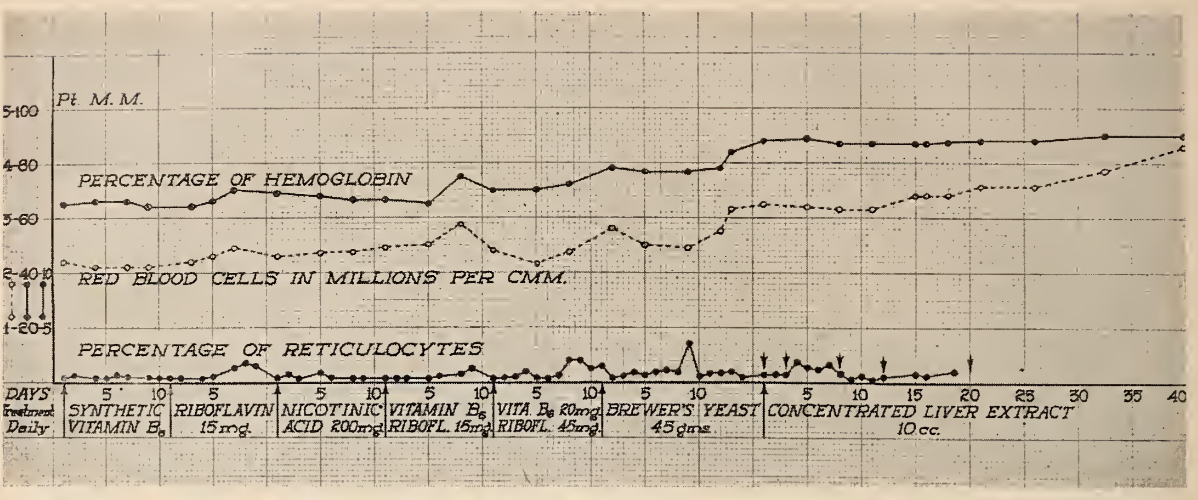

Figure 1.—A case of Addisonian pernicious anemia. Components of the vitamin B complex given by mouth are without hematopoietic effect. There was satisfactory response to 45 gm. daily doses of yeast.

Dorner, found that 0.000013 micrograms per ml. was sufficient to produce half maximal growth of L. lactis in a 23-hour growth period. With respect to weight it was 11,000 times as potent as an arbitrarily selected standard liver extract. This substance has been designated as vitamin B_{12}. West,[13] in 1948, reported that vitamin B_{12} is of great value in the treatment of Addisonian pernicious anemia. Further reports substantiating the effectiveness of vitamin B_{12} in the treatment of pernicious anemia have been published by Spies[11, 12] and Castle.[2]

During the past year on the wards and in the Out-Patient Department of the University of California Medical School, we have had an opportunity to observe the effects of vitamin B_{12} on the anemia and neurological abnormalities of a group of patients with Addisonian pernicious anemia. The case histories including the pertinent physical findings and laboratory data are reported.

GROUP I

This group consists of four cases of uncomplicated pernicious anemia.

CASE REPORTS

CASE 1: A 70-year-old white male was admitted to the medical service of the Out-Patient Department on May 21, 1948. He complained of progressive weakness, pallor, anorexia, and sore tongue of three months' duration. During the preceding four weeks he had become aware of some exertional dyspnea and a desire to sleep a great deal. His appetite was poor and he was frequently nauseated. Friends commented that his skin appeared pale and yellowish. He denied consciousness of numbness and tingling in the fingers or toes, or of instability of gait. There was no known family history of anemia.

On physical examination, the patient appeared slightly obese, and there was a pale yellowish discoloration of the skin. The sclerae was faintly icteric. The tongue was pale and smooth. No other positive findings were elicited. Examination of the central nervous system was also negative.

Erythrocytes numbered 1,370,000 per cu. mm. with a hemoglobin of 6.8 gm. per 100 cc. (47 per cent), and the leukocyte count was 4,600 per cu. mm. The packed cell volume was 20 cc. per 100 cc. of blood. The mean corpuscular volume was 145 cubic microns; mean corpuscular hemoglobin concentration 34 per cent; and the mean corpuscular hemoglobin 49 micro micrograms. The color index was 1.7. The reticulocytes were 0.6 per cent. An analysis of the gastric secretion revealed an absence of free hydrochloric acid and pepsin which persisted following the subcutaneous injection of histamine. Specimens of bone marrow removed by aspiration of the sternal cavity showed marked megaloblastic and erythroblastic hyperplasia.

On the sixth day following examination, treatment with vitamin B_{12} was started by the intramuscular injection of 25 micrograms.* The reticulocytes began to rise on the third day following treatment and reached a peak of 11.6 per cent on the seventh day. At the onset of the reticulocyte rise the patient expressed a feeling of improvement and a return of appetite. On the 16th day following treatment, the erythrocyte count had risen to 2,990,000 per cu. mm. and the hemoglobin to 10.1 gm. per 100 cc. (70 per cent). The reticulocytes returned to a pre-treatment level of 1.6 per cent. Examination of aspirated sternal marrow showed a normal pattern. On this day the patient was given a second injection of 25 micrograms of vitamin B_{12} to determine whether or not a secondary reticulocyte rise could be induced. It is to be observed that there was a rise in the reticulocytes from 0.6 per cent to a peak of 5.2 per cent. Following this the reticulocytes returned to a low level of 0.4 per cent.

Twelve weeks following the initial treatment the erythrocytes numbered 4,100,000 and the hemoglobin content was 12.7 gm. per 100 cc. (92 per cent).

Although the need for continued treatment was emphasized to the patient, he did not return to the clinic for a period of three months. On December 10 he reported to the clinic because of a return of weakness. Erythrocytes numbered 1,580,000 and the hemoglobin was 8 gm. per 100 cc. (57 per cent). Treatment was reinstituted with an injection of 50 micrograms of vitamin B_{12}. There was a repetition of the reticulocyte response and a peak of 13 per cent was recorded on the sixth day. Four weeks following the injection of vitamin B_{12} erythrocytes numbered 3,500,000 and the hemoglobin was 10.8 gm. per 100 cc. (75 per cent). On February 11, 1949 (eighth week) erythrocytes were 4,160,000 and the hemoglobin 14.5 gm. per 100 cc. The data showing this patient's response to vitamin B$_{12}$ appears in Figures 2, 3, and 4.

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*Supplied by Dr. Augustus Gibson of Merck & Co., Rahway, New Jersey.

Case 2: A white female, aged 28 years, was first observed in the Out-Patient Department in 1933 with a complaint of weakness, palpitation, and dyspnea. There were no paresthesias. Aside from obesity, the physical examination showed no symptoms or signs of clinical significance. There was no clinical evidence of disease of the neurological system. Laboratory studies revealed an erythrocyte count of 2,000,000 per cu. mm.; hemoglobin content 54 per cent of normal (7.5 gm. per 100 cc., Sahli). Achylia gastrica persisted despite the parenteral injection of histamine. The halometer reading (average diameter of the erythrocyte) was 8.3 microns; the saturation index was 1.31. Accordingly, a diagnosis of hypochromic macrocytic anemia was made. The patient responded well to parenteral injections of liver extract. On the 25th day following the institution of therapy, erythrocytes numbered 4,100,000 per cu. mm., and the hemoglobin content was 88 per cent (12.4 gm. per 100 cc. Sahli).

PERNICIOUS ANEMIA NO I

J.E.R. Age. 70 O.P.D. 48690 U.No. 154124.

DATE	R.B.C.	Hgb % gms.	Ret	Platelets	WBC	
6-1-48	1.37	47-6.8		340,000	4600	0.2 cc vit. B$_{12}$ given i.m 0.025 mg/c.c
6-2-48	1-48	46-6.6	0.6			0.7 c.c. vit B$_{12}$ given i.m
6-3-48			2 2			
6-7-48	1.77	54-7.8	11.6			
6-8-48			8.6			
6-9-46	2.31	56-8.1	8.6			
6-10-48			6.4			
6-11-48	2.03	56-8.1	7.2			
6-12-48			3.8			
6-14-48	2.50	64-9.2	4.4	385,000		
6-15-48			1.2			
6-16-48	2.99	70-10.1	1.8			

Figure 2.—*Case 1.* Response of reticulocytes and course of blood counts on parenteral injection of 25 micrograms of vitamin B$_{12}$.

PERNICIOUS ANEMIA NO II.

J.E.R. Age 70. O.P.D. 48690 U.NO. 154124.

DATE	R.B.C.	Hgb. % gms	Ret.	Platelets	W.B.C	
7-16-48	2.87	74-10.7				B$_{12}$-1.0cc. i.m. 0.025 mg m.
7-19-48	2.70	71-10.2	0.6			
7-20-48			3.4			
7-21-48	2.64	77-11.1	4.6			
7-22-48			4.6			
7-23-48	3.39	84-12.1	5.2			
7-28-48	3.07	84-12.1	1.0			
7-29-48			0.4			
8-5-48	3.43	86-12.4		200,000		
8-12-48	3.62	90-13.04		225,000		
8-20-48	3.87	88-12.7				
8-27-48	4.10	92-12.7		380,000		
9-10-48	4.28	84-12.1				

Figure 3.—*Case 1.* Secondary reticulocyte response induced by second injection of 25 micrograms of vitamin B$_{12}$. Return of red blood cells and hemoglobin within normal range in 60 days.

PERNICIOUS ANEMIA

NAME: J.E.R. AGE: 70 (Re-entry)

DATE	R.B.C.	Hgb. %Gms.	RET	W.B.C.	TREATMENT
12-10-48	1.58	57			Vit. B$_{12}$ .050 mgm. given I.M.
12-13-48	1.91	61	6.0		
12-14-48			10.8		
12-15-48	1.89	60	8.8		
12-16-48			13.0		
12-17-48	2.41	65-9.4	8.4		
12-19-48	2.43	68-9.8			Vit. B$_{12}$ .020 mgm.
1-7-49	3.12	79-11.4			↖ given I.M.
1-10-49	3.50	75-10.8			Vit. B$_{12}$ .050 mgm.
1-14-49	3.34	86-12.4		7600	given I.M.
1-21-49	3.43	85-12.3		7500	←.050 mgm. B$_{12}$
1-28-49	4.13	85-12.3		11,050	given I.M.
2-4-49	4.08	88-12.7		12,650	
2-11-49	4.00	106-15.3			

Figure 4.—*Case 1.* Shows recurrence of anemia four months after last injection of vitamin B$_{12}$ but satisfactory response of blood on further administration of vitamin B$_{12}$.

(It is of interest that in 1933 the patient's mother was examined and found to be suffering from hypochromic anemia. The erythrocyte count was 4,170,000 per cu. mm., and the hemoglobin content was 54 per cent (7.5 gm. per 100 cc., Sahli). The mother was reexamined in 1943 at which time she showed the characteristics of Addisonian pernicious anemia).

The patient refused treatment for about three years because of marital difficulties. On October 29, 1948, she was admitted to the Out-Patient Department complaining of weakness and dyspnea on exertion. The erythrocyte count was 1,410,000 per cu. mm. and the hemoglobin 47 per cent (6.8 gm. per 100 cc., Sahli). The mean corpuscular volume was 170 cubic microns; the mean corpuscular hemoglobin 41 micro micrograms; and the mean corpuscular hemoglobin concentration 28 per cent.

The patient was given a parenteral injection of 50 micrograms of vitamin B$_{12}$. Figure 5 shows response to therapy. It is to be noted that within 24 hours the reticulocytes had risen from 0.8 per cent to 7.6 per cent, and reached a peak of 8.8 per cent in 120 hours (fifth day). The patient was given another injection of 50 micrograms of vitamin B$_{12}$ to determine whether or not a secondary reticulocyte rise could be stimulated. However, this did not occur. Erythrocyte count and hemoglobin attained normal levels in 60 days.

Case 3: A white male, aged 66 years, reported to the Out-Patient Department on January 6, 1947, complaining of epigastric distress. He stated that he had felt well until seven or eight weeks previously when he first noticed a vague soreness in the epigastrium accompanied by nausea and some gaseous eructation. His weight had averaged 205 pounds until two months previously; at the time of examination it was 192 pounds. The patient was a normally developed, moderately obese man, in no apparent distress. The positive physical findings consisted of a moderate degree of

PERNICIOUS ANEMIA
(IN RELAPSE)

NAME: E. G. AGE: 43

DATE	R.B.C.	Hgb. % Gms.	RET%	W.B.C.	TREATMENT
10-29-48	1.41	47-6.8	0.8	4500	Vit B$_{12}$ .050 mgm. given IM
11-1-48			7.6		
-2-			6.8		
-3-	173	57-8.2	8.8	7900	
-4-	2.15	58-8.4	7.0		
-5-	2.28	58-8.4	6.0		
-8-	2.68	72-10.4	6.0		
-9-			0.5		
-10-	2.84	81-11.7	2.6		
-11-			2.6		
-12-	2.91	83-12.0	1.6		Vit B$_{12}$ 050 mgm. given IM.
-15-	3.14	84-12.1	1.6		
-16-			0.8		
-17-	3.04	87-12.6	2.2		
-18-			1.2		
-19-	3.12	82-11.8	1.4		
12-31-48	4.37	94-12.9			Vit B$_{12}$ .030 mgm. given IM

Figure 5.—*Case 2.* Response of reticulocytes and blood counts to 50 micrograms of vitamin B$_{12}$. No response of reticulocytes occurred following second injection.

PERNICIOUS ANEMIA

NAME: M^c C R.M. AGE: 67

DATE	R.B.C.	Hgb %Gms	RET	W.B.C.	TREATMENT
10-6-48	1.01	35-5.0	1.8	3500	Megaloblastic bone marrow
-9-			3.0		
-10-			2.6		Vit B_{12} .025 mgm given I.M.
-11-	1.16	44-6.3	15.2		
-12-			16.2		
-13-	1.60	45-6.5	19.4		
-14-			16.2		
-15-	2.06	51-7.3	10.8	5700	
-16-			4.4		
-18-	2.49	61-8.7	3.2	9250	
-22-	2.59	61-8.7			
-29-	2.31	64-9.2	0.2		Vit. B_{12} .025 mgm given. I.M.
11-1-48	2.84	63-9.1	0.2		
-4-	3.31	64-9.2	1.0		
-8-	3.45	80-11.6	1.2		
12-3-48	3.28	86-12.4			Patient left clinic

Figure 6.—*Case 3.* An injection of 25 micrograms of B_{12} resulted in an erythropoietic response. Patient left clinic before course of observation completed.

generalized arteriosclerosis associated with a systolic blood pressure of 165 mm. of mercury and a diastolic pressure of 76 mm. The erythrocyte count was 4,660,000 per cu. mm., leukocytes numbered 10,360, and the hemoglobin content was 100 per cent of normal (14.5 gm. per 100 cc., Sahli). Gastric analysis showed a persistent achlorhydria despite the parenteral injection of histamine. Stools were negative for occult blood. Roentgenographic studies revealed no abnormalities in the gastrointestinal tract or gall bladder.

The patient did not return to the Out-Patient Department until October 4, 1948, when he complained of progressively increasing dyspnea of four months' duration, anorexia, and a loss of 35 pounds in weight. His family had observed that his skin had become pale and sallow. There had been no numbness or tingling in the fingers or toes, or soreness of the tongue.

Erythrocytes numbered 1,000,000 per cu. mm.; hemoglobin was 35 per cent (5 gm. per 100 cc.); leukocytes numbered 3,500, and the platelets 150,000 per cubic millimeter. The icterus index was 10 units and the volume of packed red blood cells was 15 cc. per 100 cc. of blood. The mean corpuscular volume was 148 cubic microns; mean corpuscular hemoglobin concentration 33 per cent; and the mean corpuscular hemoglobin 40 micro micrograms. A specimen of sternal marrow was aspirated and examination showed the presence of large numbers of megaloblasts consistent with the diagnosis of pernicious anemia. On October 8, 1948, the patient was given an intramuscular injection of 25 micrograms of vitamin B_{12}. The subsequent reticulocyte response and rise in erythrocytes are recorded in Figure 6. At the end of 48 hours, the reticulocytes had increased from 3 per cent to 15 per cent and reached a peak of 19 per cent at 96 hours. A secondary reticulocyte response did not appear following a second injection of liver extract. Just prior to the end of 60 days of observation, erythrocytes numbered 3,280,000 and the hemoglobin was 85 per cent of normal. At this time it became necessary for the patient to travel some distance so that further counts were not obtainable.

CASE 4: A white, married female, aged 47, was first examined on September 12, 1948, at which time she complained of headache, weakness, loss of weight, swelling of ankles, and palpitation. These symptoms had been getting progressively worse over a period of about four months.

On physical examination it was noted that there was a lemon-yellow color to the skin and pallor of the mucous membrane. The tongue appeared smooth. A murmur, systolic in time, was heard in the region of the apex in the heart. The spleen was not enlarged. Erythrocytes numbered 1,640,000 per cu. mm. and the hemoglobin content was 7.1 gm. per 100 cc. (42 per cent). Leukocytes numbered 3,400 per cubic millimeter. Examination of aspirated sternal marrow showed pronounced megaloblastic hyperplasia. The gastric secretion showed an absence of free achlorhydria.

Diagnosis: Pernicious Anemia

Name: Mrs. J. P. Age 47

DATE	RBC	Hgb. %Gms.	Ret. %	WBC	TREATMENT
10 8 48	1.64	42-7.1		3400	←25 Micrograms B_{12} given
9			5.6		
11			7.2		
12			15.		
13			15.8		
14			20.8		
15			11.0		
16			7.6		
18			7.0		
19			4.2		
20	2.75	59-10.0	4.0	4050	
22					←25 Micrograms B_{12} given
25			1.6		
27	3.28	69-11.6	2.2	4750	
11-12-48	3.70	74-12.5		6200	
12-3-48	3.43	10.4		4850	
17	5.33	19.1		10,600	

Figure 7.—*Case 4.* Satisfactory hematopoietic response to 25 micrograms of vitamin B_{12}.

The patient was given 25 micrograms of vitamin B_{12} intramuscularly. In 48 hours the reticulocytes were 7.2 per cent, and in 96 hours had attained a peak of 20.8 per cent. When the reticulocytes had returned to normal numbers, another injection of 25 micrograms of vitamin B_{12} was given. However, a secondary reticulocyte response did not occur. In about 60 days the erythrocyte count and hemoglobin were within normal limits as recorded in Figure 7.

COMMENT ON THE CASES IN GROUP I

It may be seen on study of the charts of these four patients that they all responded well to doses of 50 micrograms or equally well to 25 micrograms of vitamin B_{12}. When the reticulocyte count had fallen, a secondary response was induced in only one patient following a second injection of 25 micrograms of B_{12}. This indicated that in the patients not showing a secondary response the treatment was optimum and was submaximal in the other patient. Improvement was maintained in the patients with injections of 25 micrograms of B_{12} repeated every two weeks. The erythrocytes had returned to within normal range within 60 days in all patients. The one exception (Case 1) was a patient who voluntarily discontinued treatment. At the end of four months, an examination of his blood showed return of anemia of pronounced degree. A second remission resulted from renewed injections of vitamin B_{12}.

GROUP II

Three cases of pernicious anemia complicated by combined system disease.

CASE REPORTS

CASE 5: A 76-year-old white male of Swedish descent entered the San Francisco Hospital in 1944, at which time a diagnosis of pernicious anemia was made. Erythrocytes numbered 680,000 per cu. mm. and the hemoglobin content was 5 gm. per 100 cc. A remission was induced by injection of suitable amounts of liver extract.

The patient entered the San Francisco Hospital for the second time on October 19, 1948, because of recurrence of anemia. It was learned that anemia had been well controlled in the interim by injections of liver extract every three weeks. Four months prior to the present entry, the patient had a "heart attack" which confined him to bed and prevented him from returning to the clinic for needed liver extract therapy. During the previous few weeks he had noticed the occurrence of numbness and tingling in the tips of the fingers and toes.

On physical examination the patient appeared well nourished and well developed. The skin and sclerae were of a lemon-yellow tint. Dyspnea on exertion was obvious. There was generalized arteriosclerosis. A slight increase in the area of cardiac dullness to the left of the midclavicular line was noted. The radial pulse showed gross irregularity as to rate and volume as well as a pulse deficit. The vibratory sense was diminished at the ankles and toes. No abnormalities of the tendon reflexes were elicited.

Examination of the blood showed erythrocytes numbering 870,000 per cu. mm. and hemoglobin of 4.2 gm. per 100 cc. The color index was 1.7. Analysis of the gastric secretion revealed achlorhydria which persisted after the injection of histamine. Aspirated sternal marrow showed pronounced megaloblastic hyperplasia.

On October 23, 1948, 50 micrograms of vitamin B_{12} was injected parenterally. At 48 hours the reticulocytes had risen from 1.3 per cent to 5.3 per cent and in 96 hours had attained a peak of 32 per cent. Examination of the sternal marrow at this time showed erythroblastic and normoblastic hyperplasia. On the 15th day the reticulocytes had returned to pre-treatment level. Erythrocytes numbered 3,000,000 per cu. mm. and hemoglobin was 7.5 gm. per 100 cc. The bone marrow showed a normal myelogram. By this time the patient's ability to discern the vibrations of the tuning fork had returned and the paresthesias of the fingers had disappeared.

Two weeks after the first injection of vitamin B_{12} the patient received a second injection of 50 micrograms to determine whether or not a second reticulocyte rise could be induced. This did not occur.

Sixty days after treatment was instituted, erythrocytes numbered 385,000 per cu. mm., and the hemoglobin was 89 per cent of normal. The disease was complicated at this time by the occurrence of cardiac decompensation for which it was necessary to hospitalize the patient. Data on this patient is shown in Figure 8.

PERNICIOUS ANEMIA
(IN RELAPSE)
NAME: Mr L. AGE: 76

DATE	R.B.C.	Hgb. %Gms.	RET	WBC	TREATMENT
10-23-48	870,000	4.2	1.3		Vit B_{12} .050mgm given I M Bone marrow Megaloblastic and Erythroblastic hyperplasia
-24-			1.9		
-25-	916,000	4.4	5.3		
-26-			11.0		
-27-	1.52	31-4.5	32.0		Bone marrow, Erythroblastic and Normoblastic hyperplasia
-28-			27.0		
-29-	1.63	40-5.6	22.2	5200	
-30-			16.0		
-31-	2.05	40-5.6	11.0		
11-1-48	2.32	41-59	14.6		
2			3.8		
3	2.24	6.1	11.6		
4	2.33	43-6.4	8.8		
5	2.42	49-7.0	7.6		
7	2.62	55-8.0	4.8		Vit B_{12} .050 mgm I.M.
9	3.04	7.5	3.8		Bone marrow Normoblastic.
12	3.00	58-8.4	1.1		
17	3.17	68-9.8	0.2		
12-3-48	3.16	84-12.1			Bone marrow normal Vit B_{12} .050 mgm I.M. Hospitalized for Cardiac decompensation.
10	3.39	74			

Figure 8.—*Case 5.* Changes from megaloblastic to normoblastic marrow accompany hematopoietic response. Paresthesias due to combined system disease subsided 15 days after injection of 50 micrograms of vitamin B_{12}.

CASE 6: A white male, aged 65, was admitted to the San Francisco Hospital January 28, 1949, complaining of numbness and tingling in the fingers and toes. He stated that two years before entry he had visited a physician because of the appearance of a yellow hue to the skin. A diagnosis of pernicious anemia was made, and he was given injections of liver extract three times a week for two weeks and then once a week for five months. He did not return for continued therapy because he felt sufficiently improved. Eight months following the cessation of the original therapy, there was exacerbation of symptoms, and the patient again consulted a physician. He received injections of liver extract over a period of eight months when, because of a feeling of well-being, he again discontinued treatment.

Six weeks prior to entering the hospital he noticed numbness and tingling of the tips of fingers and toes. This progressed in severity to the point that for the preceding two weeks he had experienced difficulty in walking. He was uncertain as to the stability of his feet, necessitating the watching of his feet while walking. Also, in the preceding two weeks he found it necessary to spread his feet farther apart in order to maintain balance. He also noticed difficulty in writing and in handling small objects.

During the preceding two years his weight had dropped from an average of 185 pounds to 155 pounds. There was no history of sore tongue. There was no history of pernicious anemia in the family.

On physical examination the patient appeared older than his stated age. He was underweight, the hair was white, the skin appeared "lemon-yellow," and there was a mild icteric tint to the sclerae. The tongue appeared smooth and was not "beefy-red" in color. Examination of the nervous system revealed hyperactive biceps and patellar tendon reflexes. The Romberg test was designated as postive. The vibratory sense was diminished over the feet.

Erythrocytes numbered 1,400,000 per cu. mm. and hemoglobin was 4.8 gm. per 100 cc. of blood. The mean corpuscular volume was 109 cubic microns, and the mean corpuscular hemoglobin 40 micro micrograms. A bone marrow specimen aspirated from the sternum contained 37 per cent megaloblasts. The patient had histamine-fast achlorhydria.

On January 28, 1949, the patient was given an intramuscular injection of 50 micrograms of vitamin B_{12}. On this occasion the reticulocytes were 0.7 per cent but within 72 hours had risen to 6.4 per cent. In 96 hours they had attained a peak of 24.4 per cent following which they returned to pre-treatment level. On February 18 the patient received an injection of 25 micrograms of vitamin B_{12}. This was followed by a secondary rise in the reticulocytes to 8 per cent.

Seven days after the first injection of vitamin B_{12}, the patient noticed a lessening of the paresthesias in the hands and feet. At the same time, he began to gain in strength, his gait became more stable, the Romberg was recorded as negative, but no change was noted in the tendon reflexes or vibratory sense.

Diagnosis: Pernicious Anemia
Name: Mr.C.B. Age: 65

DATE	RBC	Hgb % Gms	Ret %	WBC	PMN F-NF	PME	PMB	LL	Mo.	TREATMENT
1-28-49	1.40		0.7	2700	50-3	1		40	6	← 50 Micrograms B_{12} given.
30	900,000	29-4.3	0.4	3600	37-2		1	36	4	
31	950,000	32-4.7	6.4	7700	38-2	3	1	50	6	
2-2-49	2.10	36-5.2	24.4	2600	26-7	1		61		
4	2.60	45-65	23.5	2800	30-6	2		57	5	
6	2.60	45-6.5	18.0	4360						
9	3.10	49-7.0	12.0	5200						
12	3.00	52-7.5		6200	55-1		2	42		
14	3.20	66-96		6400	62-2	1	1	30	4	
16	3.35	66-96		4900	59-1	1	1	34	4	
18	3.30	69-10								← 25 Micrograms B_{12} given
21	3.41	69-10		6000	60-2		1	35	2	
28	4.41	83-120		7550						

Figure 9.—*Case 6*. Satisfactory hematopoietic response to 50 micrograms of vitamin B_{12}.

Sixty days after treatment was started, erythrocytes numbered 4,410,000 per cu. mm. and the hemoglobin was 83 per cent of normal (12 gm. per 100 cc.).

CASE 7: The patient, a 48-year-old white female, was known to have had pernicious anemia for 15 years with sporadic treatment. When examined on December 16, 1948, she complained of numbness and tingling in the fingers and toes, a loss of sense of position, and difficulty with locomotion.

Examination of the nervous system showed the vibratory sense to be absent from both feet and knees; position sense was absent in both big toes, and the patellar and Achilles tendon reflexes were both exaggerated. They were recorded as 3 plus. Examination of the blood revealed a slight macrocytic anemia. Erythrocytes numbered 3,940,000 per cu. mm. and hemoglobin was 11.4 gm. per 100 cc. (80 per cent). She had histamine-fast achlorhydria. The patient was given intramuscular injections of 50 micrograms of vitamin B_{12} on December 16, 1948, and January 6 and January 31, 1949. Neurological examination on the latter date revealed that the vibratory sense had returned to both knees and both ankles. Position sense had also returned to both great toes. The patient volunteered the information that there had been definite improvement in the gait. The erythrocyte count had increased to 4,430,000 per cu. mm. of blood.

COMMENT ON THE CASES IN GROUP II

In this group of three patients attention is again called to the excellent hematopoietic response to injections of vitamin B_{12}. This is indicated by the increased number of reticulocytes appearing in the peripheral blood within 48 hours and attaining a peak response in 96 hours after treatment was started. In two patients the response was optimum. In one patient (Case 6) the response was submaximal wherein a secondary reticulocyte response appeared following the second injection of vitamin B_{12}.

The neurological symptoms complained of by these patients varied in degree. In one (Case 5) they were minor, and consisted of numbness and tingling of the fingers and toes, and inability to discern the vibrations of a tuning fork over the feet. These symptoms had disappeared entirely by the 15th day following the injection of vitamin B_{12}. In the other two patients, the neurological changes were advanced to a further degree. These consisted not only of paresthesias and loss of vibratory sense, but loss of position sense and disturbances of locomotor function as well. In one patient (Case 6), seven days after treatment was started the paresthesias were greatly diminished and the Romberg test became negative. The vibratory sense, however, remained impaired. In the third patient (Case 7) when examined six weeks after treatment was started, there was return of vibratory sense, return of position sense and pronounced improvement in locomotion.

GROUP III

One case of pernicious anemia complicated by pregnancy and sensitivity to liver extract.

CASE REPORT

CASE 8: The patient, a white female, aged 31, was first examined in May, 1947, when she was found to have macrocytic anemia accompanied by gastric achlorhydria. Erythrocytes numbered 3,200,000 per cu. mm. and hemoglobin was 12.5 gm. per 100 cc. The patient was given intramuscular injections of 40 units of liver extract once a week for six weeks. The reticulocytes attained a peak of 6 per cent and, at the end of this period erythrocytes numbered 4,360,000.

The general condition improved and the patient remained well on injections of 20 units of liver extract every ten days. On November 12, 1948, the patient reported that after each of the last four injections she had suffered considerable pain, redness and swelling at the site of injection, which subsided only after two or three days. The last injection was further complicated by nausea and a generalized urticarial rash. At this time the patient was five months pregnant. It was believed that she had become sensitive to liver extract, and it was necessary to discontinue this form of therapy. On January 6, 1949, erythrocytes had decreased to 3,120,000 per cu. mm. of blood, and hemoglobin to 10 gm. per 100 cc. At this time an intramuscular injection of 25 micrograms of vitamin B_{12} was given. Reticulocytes increased to 12 per cent and on January 20, 1949, erythrocytes numbered 4,340,000 per cu. mm.

COMMENT ON THE CASE IN GROUP III

Case 8 is clearly one of Addisonian pernicious anemia that had been adequately treated on liver extract until the course of the illness became complicated by pregnancy. Subsequently, the patient became sensitive to liver extract and further use of this medication was discouraged. There was an interim of several months when the patient could not be given liver therapy and during which time there was recurrence of anemia of slight degree. When vitamin B_{12} became available as a therapeutic agent for this patient, there was a satisfactory response of the blood following an injection of 25 micrograms. There were no signs of drug sensitivity, such as were exhibited when liver extract was given.

DISCUSSION

In the eight patients whose case histories have been reported here, satisfactory hematopoietic response occurred in all following an initial injection of 25 or 50 micrograms of vitamin B_{12}. An increase in reticulocytes became apparent in the peripheral blood usually within 48 hours and peak response was attained within 96 hours. In these patients the peak of the reticulocyte response ranged from as low as 9 per cent to as high as 32 per cent. In none of the patients were there the maximal reticulocytoses up to 40 per cent or more as indicated by Isaacs' formula (i.e., the greater the degree of anemia, the more pronounced should be the reticulocyte response). It is well known that such factors as arteriosclerosis or low grade infection may modify reticulocyte response. However, the conversion of the bone marrow from one of the megaloblastic (rubriblastic) hyperplasia to one of normoblastic (metarubriblastic) distribution accompanied by a return of erythrocytes and hemoglobin to normal levels within 60 days indicates that satisfactory remission had been induced.

No better initial response is likely to be obtained in an uncomplicated case of Addisonian pernicious anemia by giving larger doses of vitamin B_{12} than those used in the cases reported. Since two of the patients, one having received 50 micrograms and the other 25 micrograms as initial injections, showed secondary reticulocyte response on second injections of similar amounts, it may be stated that some patients will require greater amounts than others to produce absolute optimal effects. Experience in the use of vitamin B_{12} in a larger group of patients will be required to help solve this problem.

Some investigators recommend that vitamin B_{12} should be given in certain dosage (e.g., 10 micrograms once or twice a week) in order to obtain satisfactory remission and maintain the blood cell count at normal levels. Information at hand suggests that vitamin B_{12} is the effective agent in liver extract and that its action is similar to that of liver extract. It may be well, therefore, to adopt criteria which have been applied to liver extract and give larger individual dose injections at longer intervals rather than smaller doses at frequent intervals. Clinical studies imply that the anti-pernicious anemia activity of one microgram of vitamin B_{12} is approximately equivalent to that of one U.S.P. unit of liver extract (Rickes). The intramuscular injection of 60 micrograms of vitamin B_{12} should be the minimal amount to effect a satisfactory reticulocyte rise and cause a return of the blood to normal in 60 days.

In preliminary work the authors have started out with initial doses of 50 micrograms but more recently have reduced this to 25 micrograms, to be repeated every two weeks until the blood has returned to normal. An injection of 30 to 50 micrograms at intervals of one month should be adequate to maintain normal erythrocyte and hemoglobin content in the blood.

Originally it was found that, in the treatment of Addisonian pernicious anemia with raw liver, the early manifestations of combined system disease were arrested or completely abated in due course of time. In the process of purification of liver extract, it was thought that this activity might be lost in the discarded side-fraction or might be totally destroyed. This was not entirely so. Although some of the factors may have been removed during the process of concentration, liver extracts on the whole have served well in ameliorating or stopping progression of the combined system disease. Unfortunately, this has not been the case with folic acid. Clinical experience has taught that this is not a safe drug to use in the treatment of pernicious anemia because it does not have a curative effect on the combined system disease or prevent its development.

With regard to vitamin B_{12}, our experience is in keeping with that of Castle[2] and Spies[12] that in the cases of early combined system disease there is prompt relief from the paresthesias arising from degeneration of the posterior columns. In patients with moderately advanced disease, there may be complete relief of paresthesias and amelioration or complete disappearance of symptoms arising from the lateral descending pyramidal tract.

At present under observation is a group of patients whose paresthesias, loss of vibratory sense and spasticity of gait have persisted in spite of large doses of liver extract. Recently, these patients have been given injections of vitamin B_{12}. Objectively, little change can be detected in their condition, but their spontaneous admissions are to the effect that they feel better and have noticed improvement in locomotion.

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Psychotherapy of Functional Dermatoses

Its Value and Limitations as Applied to Neurodermatitis

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SUMMARY

Etiologically, neurodermatitis is interpreted as an often manifestly hereditary diathesis which is frequently complicated and exacerbated by disturbances of the patient's emotional and psychic structure. The following traits are commonly exhibited, singly or in combination: a tendency toward excitability and an exaggerated capacity for response to stimuli, polyvalent dermal hypersensitivity, a propensity to vascular disturbances, a personality somewhat obsessional in structure and evidence of deep-seated emotional conflict.

Shallow psychotherapy, an indispensable adjunct to the treatment of neurodermatitis, can be successfully applied by any dermatologic physician adequately endowed with patience, sympathy and tact. This method does not achieve a cure, but, properly applied, it can immeasurably improve the patient's lot.

IN the six years that have passed since the author discussed "Functional Factors in Common Dermatoses" before a meeting of the California Medical Association, there has been time for ideas to mature, to enlarge and to be modified. Meanwhile, thoroughgoing experimental studies on the pathologic changes underlying functional disease and psychiatric investigations of the symptom complexes associated with certain dermatoses have been carried out, and a number of leaders in the field of dermatology have come to an acceptance of a concept of psychogenic factors with regard to diseases of the skin. Yet the author often is confronted by dermatologists who, although recognizing the importance of non-somatic factors in certain cases, say that they have not succeeded in the treatment indicated.

Believing that this lack of success stems from lack of full appreciation of the multiple emotional factors which contribute to the genesis and continuance of the dermatosis in such cases, the author feels that it might be worth while to consider, as a guide, his own interpretation of the etiological structure and views as to therapy of neurodermatitis of the dry type. This disease, although by no means the only cutaneous disorder in which functional factors play an important role, has been chosen as an example because of its prevalence and recalcitrance and because the patient who has it is likely to have a hostile attitude which poses particular difficulties for the physician.

Rational therapy must be based on well formulated etiologic concepts. In the author's opinion, the patient with neurodermatitis often has a manifestly hereditary diathesis, which no method so far discovered can rationally be expected completely to overcome. However, neurodermatitis is frequently complicated and exacerbated by disturbances of the emotional and psychic structure of the patient, and these aggravating disturbances are often amenable to therapy.

The patient with neurodermatitis frequently exhibits one or more of the following traits:

1. A tendency toward excitability and an exaggerated capacity for response to stimuli, features which were pointed out in 1940 by Becker and Obermayer[1] and subsequently emphasized by many investigators.

2. The frequent presence of polyvalent dermal hypersensitivity. The threshold of such allergic responses is raised or lowered by the emotional tension of the patient.

3. A propensity to vascular disturbance, which may assume diverse forms. The abnormal state may be reflected in vascular spasms stemming from adrenergic impulses and clinically discernible as pallor, or it may be expressed by abnormal prolonged vasodilatation consequent to cholinergic impulses and resulting in an increase of all signs of cutaneous inflammation and a decrease in the threshold of pruritus. Experiments have shown that attacks of vascular disturbance in such patients may be precipitated by the upsurge of such emotions as fear, distress, self-pity and apprehension. It is easy to understand, then, why the patient with neurodermatitis has periodic exacerbations and recurrences of the disease, for such a patient is prone to undergo emotional upheavals which inexorably affect the state of his skin.

4. A personality somewhat obsessional in structure. As the author has stated before,[3] the patient with neurodermatitis is manifestly "high-strung" and tense. Exaggerated ambition is reflected in an

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Chairman's Address, read before the Section on Dermatology and Syphilology at the 77th Annual Session of the California Medical Association, San Francisco, April 11-14, 1948.

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energetic "high-pressure" approach, in the assumption of unnecessary burdens, and in an over-serious attitude toward responsibilities. Such a patient is proclived to activity, and he may be so persistent and exacting that one realizes his goal approaches perfection. His intelligence is often above average; in some instances his inner instability is masked by outward calm.

5. Frequent evidence of a deep-seated emotional conflict stemming from early childhood. Recent psychiatric studies[2, 4] have shown that the patient often has suppressed hostility toward the mother, a profound belief that he is unloved and unlovable, and a fear of being close to or of being touched by anyone; he often derives satisfaction from his suffering. These are features which highly complicate sexual adjustment.

To one who has been made aware of the significance of these traits the necessity for psychotherapy is obvious. There are two kinds: a deep probing of the mind, which only the psychiatrist can carry out, and shallow psychotherapy, which any dermatologic physician who has the prime requirements of intelligent sympathy, understanding and patience can practice.

Deep psychotherapy, in the form of psychoanalysis, fulfills a double purpose in that it offers assistance to the patient who has a true psychoneurosis and affords a means of gaining further much-needed knowledge of the emotional conflicts associated with dermatosis. From the relatively small number of analyzed patients with neurodermatitis, much has been learned. In addition to the facts mentioned before, a hostile, destructive attitude toward the analysis was frequently uncovered. The presence of such hostility, whether open or veiled, must be especially heeded and understood by the dermatologic practitioner if he hopes to enlist the patient's full cooperation.

Psychoanalysis, even in its abbreviated and modified forms, remains at the present time, for economic reasons, the method for a privileged few. However, even if psychoanalysis were adapted to large-scale use in treating the dermatosis, it would have limited applicability, for lasting beneficial results have so far been obtained when the dermatosis first appeared after the patient had reached adulthood. When the disease has been present since childhood, response to deep psychotherapy has been poor. In other words, the earlier the constitutional diathesis appears and the more pronounced its manifestations, the less can be expected, therapeutically speaking.

Shallow psychotherapy, on the other hand, does not aim at unravelling the deep-seated emotional conflicts of the subconscious mind. It strives to provide the patient with an acceptable emotional outlet, through his "transference" to the physician, and to enlist his cooperation in bringing about a rational reorganization of his activities. The physician who is applying shallow psychotherapy must be willing to listen to the patient at all times without interrupting; one of the aims is to relieve the patient's anxiety about the feelings of hostility directed toward a mate or a parent, a goal which may be achieved by patiently explaining the phenomenon of "ambivalence," that is, the propensity to both love and hate another person at the same time. Distress can often be alleviated if it is pointed out that parents are not intrinsically sacrosanct beings and that one need not feel guilty about experiencing hostility toward them.

The patient who is depressed and discouraged about the illness must be freely offered reassurance and encouragement. Every patient must be helped to gain a perspective of his needs and interests, and he must be given sound, practical advice about restoring equilibrium to an often irrationally organized life. The physician can frequently help to eliminate causes of friction by interviewing marital partners or relatives in order to give them some understanding of the patient's problems and by suggesting alterations in living arrangements. The patient must be helped to outline a regime which will provide for adequate rest, including regular sleeping hours and, if possible, a daily nap, and a sensible balance between work and play. It is helpful to stress the value of restful vacations. In addition, mild sedation is frequently indicated, for it has been shown experimentally that barbiturates, like reassurance, persuasion and the gaining of insight, by exerting a remarkably depressive effect on the improperly controlled hypothalamic centers, can prevent overstimulation and consequent vasodilatation.

THREEFOLD EFFECTS OF PSYCHOTHERAPY

It has been the author's experience that if such psychotherapeutic measures are applied in addition to the generally accepted dermatologic methods of therapy the effects are threefold:

1. The initial sympathetic interview affords the patient a long needed emotional catharsis, which is followed almost immediately by symptomatic improvement.

2. This initial improvement, though often short-lived, makes it possible for the physician to enlist the patient's confidence so fully that he is enabled to accept advice and management to a far greater extent than his ordinarily hostile attitude would permit. The physician becomes a much needed "emotional crutch."

3. The patient loses his fear of the disease. He ceases hunting for the magic remedy and learns to live with the dermatosis. The insight which he has gained into his problems and his understanding of the cause and effect sequence in the disease help him to avoid the piling up of emotional tension which causes acute exacerbations.

These are the values and limitations of shallow psychotherapy as the author has been practicing it. This method, as one would expect, does not cure the disease, but since it restores a degree of functional stability to the patient his lot is immeasurably improved. The dermatologic physician who fails to obtain comparably satisfactory results with the application of psychotherapy should critically examine the approach and technique he has used with his patients. A prodigious amount of patience, sympathy and tact must be expended during the therapeutic interviews of patients with neurodermatitis. The physician who is unable or unwilling to give them in full measure cannot expect to achieve a full measure of success.

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The Changing Outlook in Coronary Disease

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SUMMARY

The statistical prognosis for patients who survive a first attack of coronary thrombosis, as regards both life expectancy and ability to return to normal activity, has been greatly improved in recent years. In the light of advances in understanding of the physiology of the heart and improvements in therapeutic methods, physicians must reevaluate ideas of what a patient should be permitted to do after recovery from an initial attack. Often a return to normal pursuits may be better for the patient than drastic restriction of activity, particularly because of the psychological and emotional effects of invalidism.

In deciding what advice to give on this score, the physician should consider in each case not only the actual amount of coronary circulation but such factors as the patient's temperament, type of occupation and economic status. The goal should be to guide each patient back to usefulness within the limits of his cardiac reserve.

PHYSICIANS and patients of the present generation are well aware that heart disease is the most common cause of death in the United States. Are they conscious, as well, of the more favorable outlook afforded to persons who have acute attacks of coronary thrombosis? For many years victims of coronary disease have been so instilled with a fear of sudden death or a dread of permanent invalidism that the ensuing psychological effects have seriously limited physicians in providing the proper care and rehabilitation for these patients.

While it is true that 15 to 25 per cent of patients with coronary thrombosis die of the first attack, the work of cardiologists who have recently examined the records of patients known to have survived this danger period indicates urgent need for a reevaluation of prognosis in this disease. Emphasis should be placed on a more optimistic outlook with regard to the life expectancy of the patient, and, even more important, physicians must recognize that a return to a certain amount of normal activity may be permitted in many cases.

Not only has the modern physician's ability to make a prompt diagnosis of coronary thrombosis contributed to the changing outlook in this disease, but the distinct advance in treatment which has been made during the past few years has further increased the chances for recovery of the patient. Recent studies on the graphic interpretation of the anatomy of the coronary circulation have made for a better understanding of the physiology of the heart, which in turn has led to new methods which now enable the physician to decrease the incidence of embolic phenomena in some cases and to save lives in others in which emboli have already developed. Therapeutic methods have been importantly improved by the development of the anticoagulants, dicoumarol and heparin.

No single condition in clinical medicine presents a more difficult problem in prognosis than coronary disease. Because of the complexity of the individual factors involved, and because the amount of damage done to the heart cannot be determined from clinical tests alone, prognosis must be based largely on the consideration of each patient's functional capacity.

The underlying basis of the coronary sclerosis and the manner in which it has developed are the determining factors in the physician's estimate of the patient's life expectancy. The task is to discover the degree of coronary insufficiency and to determine whether the disease is pursuing a progressive or non-progressive course. If the obliterative process has been gradual, permitting the compensatory mechanism of anastomosis to come into play, the heart may be enabled to create new channels which would insure an adequate collateral blood supply and serve not only to prevent severe shock but to limit the size of the infarct as well.

Although coronary disease occurs predominately in middle age, it can and does occur at various ages and in persons of all occupations. The fact that attacks of coronary thrombosis have long been known to be more prevalent among intelligent persons occupying positions of responsibility lends credence to the belief that those who are subject to irregular living habits and excessive mental and emotional strain are more vulnerable to this malady. Ultimate prognosis is generally poor if the patient is over 60 years of age at the time of onset, or if obesity is present, or multiple attacks have occurred, or angina pectoris has preceded the attack. On the other hand, ultimate prognosis is favorable if the patient is in the younger age group and there is evidence that the disease of the vessels has been arrested and an anastomotic circulation has developed.

Competent cardiologists now discredit past beliefs that the influence of activity and a return to work exerted a dire effect on the subsequent course of coronary disease. It is no longer felt that the presence of coronary disease, in any or all of its manifestations, does, in itself, necessitate a permanent withdrawal from normal activity. Therefore, the present day consensus has reversed the viewpoint that susceptibility to attack, to heart failure, angina, and, ultimately. to death are increased by moderate exertion. It has been found that the majority of patients can begin gradual resumption of former activities as early as three months following the initial attack, although in this respect each case must be judged in the light of the individual factors involved.

The physician will encounter difficulties in determining the amount of activity the patient can tolerate if he relies solely on an estimation of the anatomical changes which have occurred, or on the electrocardiographic records, which are inclined to show variance. His opinion should be based almost entirely on his approximation of the actual amount of coronary circulation present and on whether it is sufficient to provide for the ordinary effort in which the patient indulges. Whereas the appearance of mild symptoms upon the resumption of work can, at times, be looked upon as no cause for alarm, it is important that the patient who resumes his former occupation should be free from any evidences of angina or heart failure. Statistics have proved that effort has no appreciable effect in producing recurrent attacks of coronary thrombosis. It is, nevertheless, very difficult to convince the layman that an attack, which may have occurred during the work hours, was due more probably to cardiac weakness caused by the physical inactivity and under-nutrition during the period of the patient's unemployment, than to the actual physical exertion.

No single standard can be applied to an individual case. A broad outlook that takes into consideration such factors as the patient's temperament, type of occupation and economic status is necessary in the estimation of each indivdual's capacity for rehabilitation. The goal in every case, however, should be to guide the patient back to usefulness within the limits of his cardiac reserve. The physician must recognize the danger in, and do his utmost to combat the tendency toward cardiac neurosis which may render the patient completely unable to carry on a gainful occupation which his heart could stand or, indeed, from which it might even benefit. The patient must be convinced by the sympathetic attitude and careful explanation of the physician that mental and emotional strain, rather than physical effort, are the factors which tend to shorten his life, and he must be made to realize that mild activity and moderate living will benefit rather than harm him.

For companies in the field of industry and disability insurance, the determination of responsibilities regarding the support of patients with coronary disease has long been considered difficult. Uncertainty and varying points of view with regard to the establishment of definite criteria concerning the total or permanent disability of the patient, and conflicting prognoses of the past, have made it difficult for these companies to distinguish between persons deserving of disability payments and those whom they have often found themselves forced to support for years after a physician had estimated the prognosis as hopeless.

In the light of recent advances which have led to the conclusion that prognosis may be favorable for 75 per cent of persons who survive an initial acute myocardial infarction, the question of whether the patient shall return to his former occupation has been made a new and more pressing responsibility for the physician. It is, therefore, not only out of concern for the patient, whose life might be made, unnecessarily, a tragedy of fearfulness and inactivity, but out of fairness to employers and insurance organizations, as well, that physicians must personally reevaluate this problem and consider it their duty to impress their patients with the new and changing outlook in coronary disease.

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Crossed Leg Palsy

With Report of a Recurrent Case

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SUMMARY

A form of peroneal palsy may be caused by crossing the legs. Two physical factors—pressure and tension—are the basic causes, although other factors may be contributory. Direct pressure is applied by the bones of the two legs, compressing the peroneal nerve between them at its superficial part near the head and neck of the fibula.

The palsy may be overlooked as an integral part of a widespread disorder so that careful evaluation and observation of the patient's habits are required. Detection becomes especially difficult when the palsy is bilateral, for then the lesion by virtue of its symmetry blends more readily with associated polyneuritis. A case of recurrent peroneal palsy due to crossing the legs in a prolonged postoperative convalescence is reported in detail.

CROSSING the legs when seated is extremely common and yet the foot drop it causes is by comparison very rare. In some circumstances, when the subject in this position exposes the peroneal nerve to prolonged pressure, crossed leg paralysis may result. In the normal subject the nerve is protected by soft parts except for the superficial inch or two near the head and neck of the fibula. There it may be injured by plaster casts, adhesive tape, or prolonged pressure on the operating room table or in delivery room stirrups, and peroneal paralysis may result.

Textbooks discuss these causes of peroneal palsy but even recent ones do little more than mention crossing the legs as a cause. Nielsen,[7] for example, states, "The nerve is usually injured in its exposed position as it winds around the head of the fibula by crossing the knees," but, like other texts, his does not describe the background of these cases. For the details we must turn to the literature, especially the contributions by Woltman,[9] who reported the first comprehensive study (27 civilians, in 1929), and the latest by Nagler and Rangell[6] (eight soldiers, in 1947). Laird and Mueller[5] called it "bombardier's palsy" but it was found also in other soldiers who were not bombardiers.[6] As Woltman found a farmer, stenographer, auctioneer, professional golfer, jeweler, and a blacksmith among the afflicted, occupation cannot be considered a predisposing factor. The lesion is also found in the unemployed, and their very unemployment may be a contributory factor, for ". . . man is not always occupied, and when he is not, he enjoys the unique privilege of crossing his knees with the result that the peroneal nerve is often wedged between the head of the ipsilateral fibula and the external condyle of the heterolateral femur and the heterolateral patella."[9] It may occur even when one falls asleep with the legs crossed.[4]

CONVALESCENTS SUSCEPTIBLE

Peroneal palsy may be found in convalescents. Paget[8] in 1876 reported it in convalescence from typhoid. Bing[1] reported a case in a patient convalescent from nasal diphtheria who sat a long time in a physician's waiting room with his knees crossed. Most of the 27 cases reported by Woltman were in patients convalescing in a hospital. Sitting idly, the convalescent is likely to keep his legs crossed for unusually long periods. In a case observed by the author the lesion developed first in a patient soon after operation, with recurrence five months later in the same convalescence. In discussing the role of an operation, Woltman[9] said, "In surgical cases it appeared more frequently before operations than after, regardless of the type of operation and of the presence of infection."

A paralysis so easily prevented should not recur, and it seldom does. The following case is reported because only one other in which there was recurrence is recorded in the literature—the sixth of the eight cases reported by Nagler and Rangell.[6] It is not stated how long after recovery the paralysis recurred in that case, but in the case observed by the author it was five months.

ETIOLOGY

Pressure alone may cause the paralysis when the nerve is in direct contact with the bones of both legs, but only when certain predisposing factors exist. Woltman's[9] patients were in the fourth or fifth decade of life, were inactive because of illness, had lost considerable weight, and had other contributory factors causing neuritis. In contrast, Nagler and Rangell[6] reported most of their patients were in the 30-40 age group, were actively engaged (and activity rather than inactivity played an important part), and were generally healthy (only 25 per cent had lost weight). Probably more pertinent to the problem is the observation by Nagler and Rangell that when pyknic, short-legged persons cross their legs there is as much as six inches between the neck of the fibula (with the peroneal nerve around it) and the point at which the legs are crossed. Thus the peroneal nerve is not compressed between them. But persons of the daddy-long-legs type can and do cross their legs in such a way that the point of intersection is higher and the peroneal nerve subjected to pressure. Their patients were tall (average height 71½ inches), thin, and long-legged. In squatting or kneeling at work they stretched the peroneal nerve, causing ischemia. Direct pressure on the nerve between the bones of the two legs, when they sat with legs crossed, always caused ischemia.

WEIGHT LOSS A PREDISPOSING FACTOR

Tall, thin persons, however, are not alone in predisposition to the lesion. Palsy of this origin occurs in others as well, when severe loss of weight so alters the body contour that the peroneal nerve, possibly already debilitated and more sensitive to injury as corollary of the factors that caused the weight loss, may be compressed when the legs are crossed. Close inspection of subjects seated with legs crossed shows that those in whom paralysis develops literally wind one leg around the other so that the nerve is stretched when the crossed leg hugs the straight leg. Then the position becomes pathogenic, for the "hugging" and "winding" cause, respectively, pressure and tension which are simultaneous and prolonged, both injurious to the nerve. Nagler and Rangell pointed out that kneeling and squatting create tension, and that sitting with legs crossed exposes the nerve to direct pressure. They did not, however, emphasize that both the stretching and pressure can occur at the same time in the single act of sitting with legs crossed, and that this becomes possible in a person of any skeletal type who has lost enough weight to permit proximation of the bones of the two legs.

CASE REPORT

The patient, a white male 51 years of age, complained of weakness in the right foot and numbness in the ankle. In walking the right foot slapped the floor and had to be lifted higher than the left to prevent its scraping. The patient could not dorsiflex the right foot nor extend the toes. Five months previously identical paralysis had occurred during convalescence soon after gastrectomy but had cleared up after two weeks of vitamin injections.

The patient, who was 69 inches in height, had lost 35 pounds in weight postoperatively and had regained only 10. Appetite was poor and there had been diarrhea intermittently for several months. The buttocks had wasted away, the thighs had poor muscle tone, and the muscle bellies in front of and below the knees were wasted and hollow. Although the paralysis was unilateral, the two limbs were symmetrical. Sphincter tone and control were intact. There were no sensory changes in the saddle area. Position and vibration sensation were normal. The patient could stand on the left leg alone to test position sensation, but not on the right. Pin prick and light touch sensation were impaired in the lower anterolateral aspect of the right leg, and more so on the dorsum of the foot and ankle. No sensory changes were found in the left leg. Pressing the peroneal nerve against the fibula produced a painful sensation in the left leg and foot but not in the right. The deep reflexes, hyperactive at the knees, were barely elicited at the ankles in the Oppenheim position, and then only with reinforcements.

Although there was complaint of tingling and numbness in the fingers and hands, there were no objective findings in the upper limbs. The pupils were slightly unequal and scarcely reacted to light. The left disc showed questionable pallor with a clearly defined nasal margin; the right was normal. No abnormalities were elicited in other cranial tests.

Occupational stress was not a factor. For many years the patient had operated a complicated paper manufacturing machine, a block long, servicing it as a machinist. Ill health had never kept him away from work. He had returned to work three months postoperatively but found he was too weak. When the foot drop recurred he stayed indoors to avoid uneven ground.

The diagnosis was polyneuritis caused by prolonged disturbances in alimentation and made worse by a postoperative "dumping syndrome" and diarrhea which further depleted low vitamin reserves. But the advanced isolated paralysis was not in harmony with the symmetry of the polyneuritis. It was difficult to explain this until it was noted that when the patient crossed his legs, he literally "wrapped" the right leg around the left, covering it from knee to ankle. It was a life-long habit, he said, and he always placed the right leg on the left. Preoperatively he had been unable to keep this position for an extended time, but with the postoperative weight loss he could rest one leg comfortably and snugly against the other for hours at a time. The patient recalled that just before the paralysis recurred he had sat this way for four hours in a poker game. Moreover, as his legs had been wedged firmly between the chair and the table, it is probable that the prolonged pressure on the nerve was greater than it might otherwise have been.

The patient was told to have his wife and friends remind him of it whenever he crossed his legs, since he continued to do it even after being cautioned against it. Thiamin chloride, 50 mg., was given thrice daily, and nicotinic acid for its vasodilator effect; also massage with frequent immersion of the affected foot in a bucket of hot water. The foot was rested against a box when the patient was reclining, in order to minimize stretching of the weakened muscles. The patient gained a pound a week. First the numbness left; then the gait improved. In two months the hollows below the knees began to fill in, and the numbness of the fingers was felt only in cool weather. In three months, recovery was complete and the patient returned to work.

DIFFERENTIAL DIAGNOSIS

So selective a paralysis should not be, but sometimes is, a diagnostic problem. For example, in one of the cases reported by Nagler and Rangell[6] the patient had extensive acute polyradiculoneuritis of Guillain-Barré with lower motor neuron disease, and the peroneal palsy was much more profound than the rest of the weakness. The peroneal palsy could easily have been diagnosed incorrectly as an integral part of the polyradiculoneuritis. In the author's case, such an error was made for a while. The error may become serious, for in a case reported by Eaton,[3] it "almost led to needless laminectomy." Nagler and Rangell made a similar observation: "In one case suspicion of disease of the spinal cord led to extensive investigation and almost to needless laminectomy, while in two others functional diagnoses were made and psychotherapy given for long periods prior to accurate diagnosis." Accurate diagnosis is even more difficult when the syndrome is bilateral, for then it blends with the symmetry of polyneuritis. As Dunning[2] reported one such case and Woltman found bilateral peroneal palsy in five cases in a series of 27, the bilateral lesion cannot be considered a rarity. A history of venereal disease in the presence of such a paralysis and of obscure extensive neurological signs may tempt one to consider the lesion syphilitic, but spinal fluid examination clarifies the issue. In 25 per cent of Nagler and Rangell's[6] cases, physicians had tentatively considered hysteria when no other apparent cause could be found.

State Hospital.

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CASE REPORTS

◀ Primary Systemic Amyloidosis
◀ Violent Reaction to Phenolphthalein

Primary Systemic Amyloidosis

M. J. Goldman, M.D., and B. Gerstl, M.D., *Oakland*

PRIMARY systemic amyloidosis is a well-defined but infrequently observed disease. Since fewer than 50 cases have been reported[6, 8] to date, and the difficulties in arriving at a correct diagnosis are enhanced by variation in location of the amyloid deposit,[3] an attempt at further correlation of clinical and pathological findings seems warranted.

CASE REPORT

Clinical History: A 54-year-old white male entered the hospital on March 22, 1947, as a transfer from a Naval hospital where he had been since August, 1946. The patient had been in good health, working as an automobile mechanic, up to January, 1946, when he had an acute illness characterized by fever, generalized aches and pains, and shortness of breath. He was hospitalized for one month and the illness was supposedly diagnosed as "flu." He returned to work and remained in good health until August 1946 when epigastric pain, nausea, and vomiting developed. A gastro-intestinal roentgenogram at the Naval hospital was reported as showing duodenal irritability. On a Sippy regimen, the patient improved and subsequent gastro-intestinal roentgenograms were normal. In September 1946 shooting pains in both arms and legs developed with a superficial burning sensation in the hands and feet. Progressive muscle weakness in all four extremities was noted, with pronounced edema of the legs, and the patient complained of frequency of urination. The blood pressure was low and electrocardiograms showed low voltage with inversion of T waves. Results of Wassermann test of the spinal fluid were questionably positive on one occasion and negative on repeat examination. The spinal fluid protein content was 60 mg. per 100 cc. and the colloidal gold curve was negative. Considered to have syphilis of the central nervous system, the patient was given a course of penicillin and then transferred to this hospital.

The past history was essentially negative. Syphilis was denied.

Physical Examination: On admission the patient appeared to be undernourished and chronically ill. The skin and mucous membranes were pale. There was no lymphadenopathy. The pupils were irregular, dilated, did not react to light but did react to accommodation. The cranial nerves were otherwise intact. The heart was not enlarged to percussion. On admission the heart sounds were inaudible to all examiners. Blood pressure was 82 mm. of mercury systolic and 64 mm. diastolic. Subsequently the heart sounds could be heard but were very faint. The rhythm was regular. The lungs were clear. There was some tenderness in the right upper quadrant of the abdomen, but no organs were felt. There was pronounced atrophy of all the muscle groups in all four extremities. There was almost complete loss of muscle power in both lower extremities and at least 50 per cent loss in both upper extremities. Fibrillary twitchings were visible. There was a "glove and stocking" type of hypesthesia present. All deep reflexes were absent. There were no pathological reflexes. Position sense and vibratory sense were intact. There was marked pitting edema in both lower extremities.

Laboratory Examinations: Examination of the blood revealed the following: Hemoglobin 10.7 gm. per 100 cc.; erythrocytes 3.75 million; leukocytes 6,900 with normal differential; mean corpuscular volume 88 cubic microns; mean corpuscular hemoglobin 30 micromicrograms; mean corpuscular hemoglobin concentration 33 per cent. Blood proteins: Albumin, 2.63 gm. per 100 cc.; globulin, 2.99 gm. per 100 cc.; albumin-globulin ratio, 0.88:1. The Kahn test was negative. The urine contained a heavy trace of albumin with occasional hyaline casts and rare erythrocytes. The specific gravity was fixed at a low level. The phenolsulfonephthalein test showed 15 per cent excretion in two hours. The average 24-hour urinary albumin was 5.0 gm. Blood urea was 33 mg. per 100 cc.

Gastric analysis showed a normal free and total acidity. Roentgenograms of the entire gastro-intestinal tract showed no abnormality. Excretory urograms showed poor dye excretion, but no other abnormality. An x-ray film of the chest revealed no abnormality, and fluoroscopy of the heart revealed a normal cardiac outline with normal pulsations.

The electrocardiograms showed a rate of 75; sinus rhythm; PR interval 0.2 second; QRS interval 0.08 second; there was low voltage of all the QRS complexes, and the T waves were flattened in all leads.

Course: It was felt that the patient did not have central nervous system syphilis, and a diagnosis of Guillain-Barré syndrome was considered. Physiotherapy was given but resulted in little improvement of muscle power. Because of the low blood pressure, inaudible heart sounds and electrocardiographic findings, pericarditis with effusion was considered until cardiac fluoroscopy ruled it out. The circulation time with Decholin was 20 seconds. The patient was digitalized with only slight improvement.

The anemia was progressive, the erythrocyte count dropping to 2.87 million and the hemoglobin to 7.2 gm. per 100 cc. Liver and iron therapy and repeated blood transfusions brought no improvement.

An attempt was made to correct the hypoproteinemia with repeated plasma transfusions, but this also was unsuccessful.

The patient complained periodically of epigastric pain, nausea and vomiting. Constipation was persistent. During the last two months of life the patient complained of dryness of the mouth and thickness of the tongue. Visible enlargement of the tongue was noted. Dysphonia and dysphagia developed and became progressively more severe. In the last month of life urinary retention developed and catheteriza-

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tion was necessary. It was the opinion of the genito-urinary consultant that this was due to the primary neurological disease. Death occurred suddenly on November 21, 1947.

Necropsy Findings: Autopsy was performed 15 hours after death. The skin was pale, turgid, and free of lesions. The tongue was large and coated. The abdominal cavity contained 500 ml. and the pleural spaces each 300 ml. of cloudy yellow fluid. The lungs grossly were intact. The heart was large and weighed 620 gm. The right and left ventricular walls contributed equally to the increase in size, measuring 10 and 12 mm. respectively. The cut surface of the heart muscle was of brown red, uniformly waxy appearance. The spleen weighed 540 gm. It showed a smooth dark purple, diffusely waxy surface. The malpighian corpuscles could not be made out. The liver weighed 2,700 gm. Its edges were rounded. The lobular architecture was well preserved. Although kidneys were not enlarged, the cortex was narrow and of yellowish color with the architecture blurred, and numerous indented scars were present on the surface. The iodine test for amyloid carried out on heart, spleen, liver, and kidneys was negative. The other organs were grossly free of lesions save for arteriosclerotic changes of the aorta and of the vessels at the base of the brain.

Lungs: The media of several small vessels was partly replaced by an amorphous homogeneously pink-staining material.

Heart: The fibrillary structure was in many places poorly preserved or not visible at all. In many instances, the muscle fibres were spread apart or surrounded, sometimes compressed by irregularly arranged waxy pink-staining fibres. In places, similarly staining globules replaced muscle fibres partly or entirely. An identical material was seen in many branches of the coronary vessels, replacing largely the media. Fine pink fibres enlarged also the subintimal space narrowing the lumen. Congo red stained only the material in the vascular walls. In a Masson stain the acellular fibres took up various hues of green. Sudan IV stains of frozen sections revealed no lipoid material.

Spleen: The reticulum was widened by a deposit of pink-staining material compressing the sinusoids and reducing the malpighian corpuscles to small groups of lymphocytes. The deposit stained bright brown red with Congo red, but not with Sudan IV in frozen sections.

Liver: Many of the vessels except some central veins showed deposits as described.

Adrenal glands and pancreas: The vessel walls as well as the neurilemma of sympathetic nerve branches were the seat of amyloid deposit. There was increase in width of the zona glomerulosa of the adrenal without alteration of the character of the cells. Cells of the surrounding fatty tissue showed thickening of the cellular membrane by homogeneously pink-staining material which was identified as amyloid by a positive Congo red stain.

Kidneys: Amyloid deposit as seen in secondary amyloidosis was noted in the glomerular loops as well as in the wall of small vessels. These deposits reacted positively with Congo red.

Intestine and bladder: The vessels showed changes similar to those of the adrenal glands.

Skin: There was no evidence of amyloid change.

Brain and spinal cord: Some of the meningeal vessels were affected as described for lungs and liver, but the parenchyma was free of amyloid deposit. Amylaceous bodies were frequently noted and were particularly numerous in the parenchyma surrounding the third ventricle.

COMMENT

This case of amyloidosis presents many of the features which are characteristic of the primary form of the disease: (1) No specific etiological factor was present; (2) although amyloid deposits were present in spleen and kidneys, as is common with secondary amyloidosis, the deposit in the heart, sympathetic ganglia and blood vessels of the liver, pancreas, adrenal, intestine, bladder, and meninges is typical of the primary form; (3) staining reactions were atypical.

The most striking clinical feature was the degree of neuromuscular involvement. Unfortunately sections of skeletal muscle and peripheral nerves were not taken, but pronounced weakness, muscular atrophy and areflexia have been reported and explained on the basis of amyloid deposit in skeletal muscle or peripheral nerves.[3] The pupillary findings, early gastro-intestinal symptoms, and urinary retention may be due to involvement of the autonomic nervous system.

Of considerable interest in this case were the cardiovascular findings. The poor quality of the heart sounds, the low blood pressure, and, in part, the dyspnea and edema may be explained by the amyloid infiltration both in the myocardium and in the smaller cardiac vessels. The electrocardiographic pattern of low voltage and flattened T waves is considered to be typical and results from alteration of conduction through the abnormal myocardium.

Enlargement of the tongue associated with dysphagia and dysphonia, all of which were present in the case, are frequent findings in primary amyloidosis, due to infiltration of the tongue, buccal mucosa, larynx and trachea.[6,8]

Abdominal pain, simulating that of peptic ulcer, and constipation were prominent symptoms. Amyloid infiltration of the gastroenteric tract may account for such symptoms,[5] but was not found in this case. The symptoms may be explained on the basis of involvement of the autonomic nervous system.

Mild anemia, of a normochromic, normocytic type, was a feature in this case. Pathologically there was considerable fatty tissue in the bone marrow, and the blood vessels of the marrow did contain amyloid, but erythropoiesis within the small groups of bone marrow cells appeared normal.

Kidney involvement is more common in secondary amyloidosis, but has also been described in the primary form.[1,4] As illustrated here, the laboratory findings are: albuminuria, casts, disturbance of power of concentration, lowering of the serum protein, reversal of the albumin-globulin ratio, and retention of the waste products of metabolism in the final stage.

SUMMARY

A case of primary amyloidosis is reported. Attention is called to the clinical symptoms of this disease entity with its involvement of the heart, spleen, kidneys, nerves, skeletal muscle, and blood vessels of most of the remaining organs of the body.

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Violent Reaction to Phenolphthalein

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A 34-YEAR-OLD man, an operator of a grain elevator, came under observation because of intermittent attacks of illness of a dismaying complexity which had begun some nine years before and had been occurring with growing frequency in the preceding two or three years.

Usually, all morning before a spell, the patient said, he would feel tense, nervous and apprehensive and would not care to eat because the stomach seemed oversensitive and full of gas. Then in the late afternoon he would be seized with a terrible and almost unbearable pain in the bones of one or both legs and would rush home and to bed. Usually a severe chill lasting for half an hour followed. By this time the pain in the legs, together with the feelings of tension and apprehension, usually had let up.

Ordinarily a rise in temperature to 103 or 104° F. ensued and this would last anywhere from five hours to three days. With the fever there might be frontal pain on one side or the other or clear across the forehead. There was no scotoma to suggest migraine and no stuffiness of the nose such as is seen with histaminic headache. There was no irritation of the bladder or swelling of joints, and never any nausea, vomiting, abdominal pain or diarrhea. There was no twitching, unconsciousness or delirium. Curiously, the third finger of the right hand got numb in the spells, suggesting irritation of a small cortical area.

In most of the attacks, as soon as the fever disappeared, the skin broke out with round, reddish, urticarial-like lesions about the size of a half dollar. This eruption, which was principally on the trunk and forearms, generally lasted about four days. In the first spells it faded entirely, but later it left brown smudges.

The patient was observed in one attack in which the skin lesions appeared without the pain and fever. In that instance the patient had a feeling of prickling all over the body.

The leukocyte count was 7,000 and the differential cell count was normal. The blood sedimentation rate was 11 mm. in one hour, Westergren.

Suggestive of a functional distress was the fact that the interval between attacks had been shortening. The patient had had two attacks in 1933 and three in 1940, while in 1941 he had had four within a period of three weeks. None of them had ever wakened him from sleep.

There had been no loss of weight.

Curiously, every year in June the patient felt tense and nervous and dopey, and fearful that an attack was coming.

The usual examination made by several internists threw no light on the problem. An allergic condition had been thought of and many skin tests had been made and diets tried out. There was no history of allergic reaction in the family and the patient did not have hay fever or asthma.

Somewhat in favor of a theory that the attacks might in some way be precipitated by something in the patient's industrial environment was the fact that he had not had one except in his home town, except for the recent spell in Rochester. The patient was sure, however, that the attacks were not associated with the handling of any particular grain. Much against a suspicion of allergic reaction to an item of food was the fact that months elapsed without an attack. Also against allergic reaction as a cause was the long duration of the fever.

Asked particularly about the use of drugs, the patient could not remember having taken any before an attack. Both the patient and his wife believed the attacks were of nervous origin and came when the strain of work let up. The attacks were never associated with any emotional crisis. In favor of the surmise that the symptoms might be of emotional origin was the fact that the patient was a rather repressed, lonely and very restless person who, as a boy, he said, would go to bed with a headache and fever whenever he lost his temper or had any psychic upset. He recalled that at such times he had been unable to eat for two or three days. Early in life he had had some symptoms suggesting migraine. His mother had had migraine. Always anger had made him ill, but it had never brought pain or fever or chills or urticaria. Puzzling and suggestive was the fact that his little daughter had a long history of curious episodes of high fever and semicoma, suggesting a migraine or epilepsy equivalent, or hysteria. An electroencephalogram of the patient was normal.

At the end of the diagnostic rope, the patient was referred to the dermatologic department of the clinic in the hope that the cause of the skin eruption could be recognized. Immediately, "phenolphthalein rash" was reported and, when a dose of the drug was given, pruritus and urticarial wheals developed in some of the pigmented areas. The attack was not typical of those the patient had had previously, but this may have been because he had just had a mild one which had "sprung the trap."

The patient still maintained that he was not taking any drug, but his physician recently wrote, saying that it is now established the cause of the trouble was a proprietary purgative, and there has been no recurrence since the use of the drug was stopped six years ago.

An interesting facet in this case was that the fever lasted for so long a time after the chill. In a case of pyramidon poisoning reported by the author, the fever curve was a high narrow spike.

SUMMARY

A highly sensitive man, after taking phenolphthalein, was seized with excruciating pain in the tibias, followed by severe chill, temperature of 103 to 104° F. and an urticarial rash that left brown smudges, especially on the trunk and forearm.

From the Division of Medicine, Mayo Clinic.

California Cancer Commission Studies*

Chapter XXX

Bone Tumors

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BONE tumors occur so uncommonly that in general practice they must be rare indeed. Because of this most physicians are not likely to become familiar with them, and hence correct diagnosis is often long delayed. The malignant tumors (sarcomata) metastasize early and any delay will inevitably prove fatal. Early recognition therefore is absolutely essential.

BENIGN BONE TUMORS

The most common benign bone tumor is the osteochondroma, a smooth-surfaced, cartilage-covered pedicled mass attached to the cortical surface of a long bone near the epiphyseal line. This painless benign tumor is easily recognized in an x-ray film, biopsy not being necessary for the diagnosis. It is most often seen in children (Figure 1, left) but is not rare in adults. Osteochondromata should be removed as they may become so large that they impinge upon nerves or blood vessels (Figure 1, center and right).

Giant cell tumor (Figure 2), solitary bone cyst (Figure 3, left) and enchondroma (Figure 3, right) are three benign tumors whose x-ray appearance, symptoms of onset and treatment have certain common characteristics. The x-ray reveals bone destruction and distention with preservation of a thin cortical layer encompassing the neoplastic mass. The tumor itself is divided by thin osseous walls into many cells of various sizes, the "soap bubble" appearance. The tumor is often asymptomatic so the patient is quite ignorant of its presence until a pathological fracture occurs. X-ray films are then made, a tumor is recognized and therapy instituted. The best treatment in most instances is thorough curettage followed by firm packing of the cavity with bone chips. Material removed permits the pathologist to establish a positive diagnosis. A final common peculiarity is the slight tendency (less than 10 per cent) for these tumors to recur, requiring a second, and rarely a third operation.

Osteoid osteoma (Figure 4) is a rare benign bone tumor, seen most often in children, affecting the cortex or subcortical area of a long bone. Aching pain is the predominant symptom. Cure is easily effected by surgical removal of the nucleus or nidus visible in the x-ray film at the center of the thickened area.

MALIGNANT BONE TUMORS

For the practical purposes of this short presentation malignant tumors arising in bone (Figures 5 and 6) can all be considered together. They have a tendency to occur in children and cause pain. They metastasize early (lungs), but in spite of this cure is not impossible. There are many ten- and fifteen-

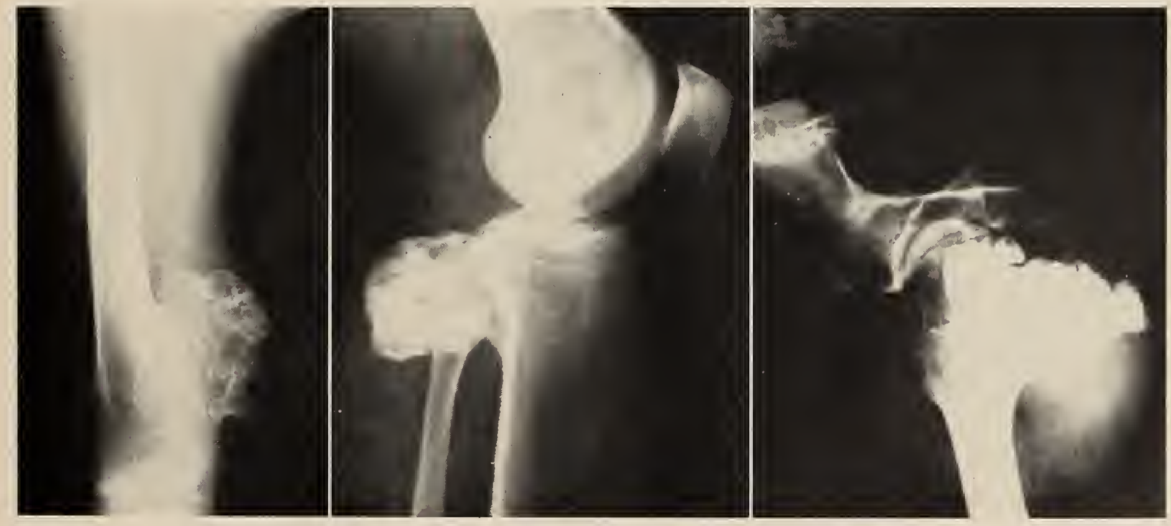

Figure 1. (*Left*)—Typical benign osteochondroma, femur (male age 14). Note pedicle attached to cortex. The cauliflower-like osseous medulla is covered with a smooth-surfaced but lobulated cortex of cartilage.

(*Center*)—Benign osteochondroma, posterior surface, epiphysis of tibia (male 35) present many years. Thrombosis of popliteal artery with impending gangrene of foot brought patient to clinic.

(*Right*)—Benign osteochondroma, posterior surface, neck of femur in woman age 45. Pressure on trunk of sciatic nerve, especially on sitting, causing severe neuralgic pains, eventually "drove" patient to consult a physician.

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*Organized by the Editorial Committee of the California Cancer Commission.

year cures on record. There will be many more such cures if these tumors are recognized early.

Recognition: Little acumen is required to recognize the far advanced and commonly described case —the patient, an anemic, emaciated child with a visible and palpable bone tumor over which the stretched skin is excessively warm and contains dilated blood vessels. But, if we are to save patients, malignant bone tumors must be recognized long before this stage is reached. Any person, but particularly a child, who continues to complain of aching pain in a bone should have x-ray examinations every two weeks until the cause of the pain is found. The films must be of good quality so that the finer anatomy of the osseous architecture can be carefully compared with x-ray films of the normal side. The films must be taken in several planes and must include the joint above and below the site of pain. Unfortunately, clinical examination gives little, if any, information at the time when it is important to make the diagnosis. Tenderness to prolonged pressure should arouse suspicion. Wassermann reaction, sedimentation rate, blood counts and other laboratory work are, of course, important, but in the final analysis it is the x-ray appearance of periostitis, areas of diminished or increased density or

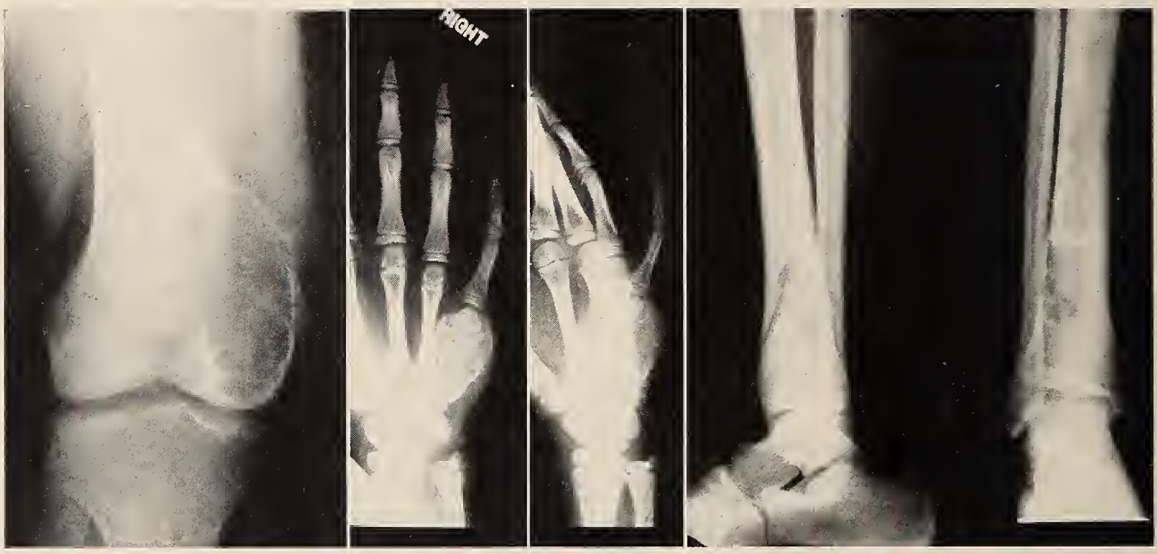

Figure 2. (*Left*)—Common picture of giant cell tumor. Important characteristics to be noted: Adult, located in epiphysis; expansile lesion; marked destruction of bone but thin layer of cortex preserved over surface; no new bone formation; tumor closely approaches but does not penetrate the articular cartilage; pathological fracture through thin cortex.

(*Center*)—Very large expansile benign tumor involving entire fifth metacarpal in patient 6 years of age. X-ray diagnosis: cyst or enchondroma. Pathological diagnosis: typical giant cell tumor.

(*Right*)—Pathological fracture through giant cell tumor diagnosed by x-ray as bone cyst since (1) patient aged 12 (2) the lesion appeared in shaft. Pathological picture typical of giant cell tumor.

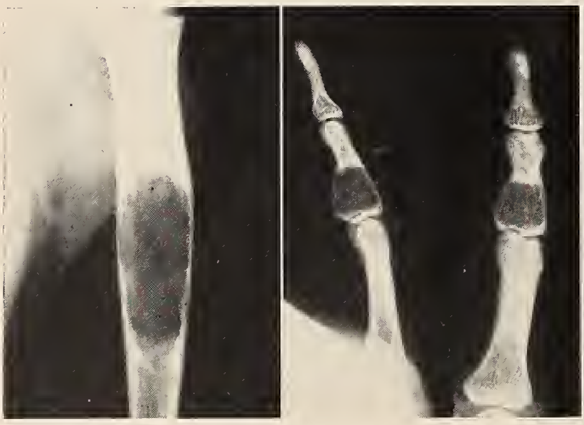

Figure 3. (*Left*)—Common picture of a solitary bone cyst in a child 9 years of age. Important characteristics to be noted: Child, lesion located in metaphysis; expansile lesion; marked destruction of bone but thin layer of cortex preserved over surface; no new bone formation.

(*Right*)—Common picture of an enchondroma in a patient aged 30. Note: Expansile lesion, shaft of phalanx; adult, lesion located in shaft of short bone; marked destruction bone but thin cortex preserved over surface.

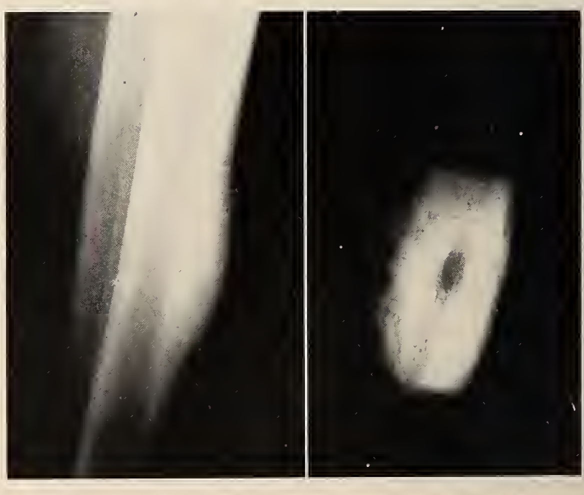

Figure 4. (*Left*)—Lateral view tibia patient aged 12. Note smooth surfaced thickening of cortex with small localized oval area of decreased density in center (nidus).

(*Right*)—X-ray of portion removed at operation showing central nidus.

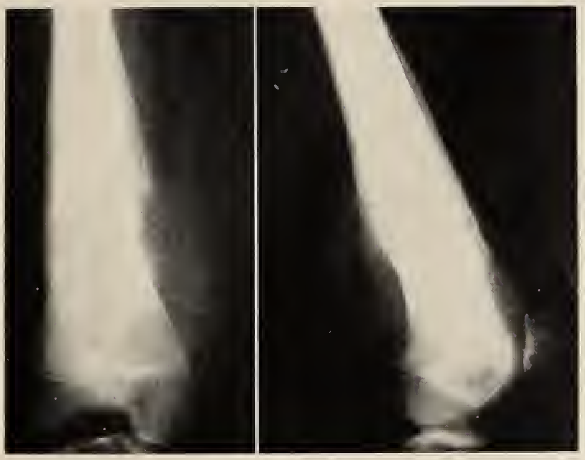

Figure 5.—Sarcoma, femur (osteogenic type) in a patient aged 14. Positive diagnosis by biopsy followed immediately by amputation at hip. Patient well 13 years later. Note: Periostitis in layers extending up shaft; location near epiphyseal line; spicules (whiskers) of new formed bone at right angles to shaft; areas bone destruction within cancellous area of metaphysis; areas of increased density; tumor extends to but does not penetrate epiphyseal plate.

new bone formation which arouses suspicion of malignancy. At this point the case immediately becomes an emergency and the patient must be hospitalized under the care of a surgeon and pathologist who have had experience in diagnosis and definitive care of malignant bone tumors.

BIOPSY

Although the x-ray picture may be "typical" of bone sarcoma the fact remains that accurate diagnosis can be made only by an expert pathologist. This requires biopsy, which should be done in the presence of the pathologist, who shares the responsibility of selecting proper material. Many times by studying frozen sections he can be absolutely certain of the diagnosis and allow the surgeon to go ahead with radical amputation. In rare cases, however, he will need to study paraffin sections. In these cases treatment, unfortunately, must be delayed 24 hours. This is the only acceptable excuse for any delay whatsoever between biopsy and definitive treatment. The all too common practice of giving a six-week

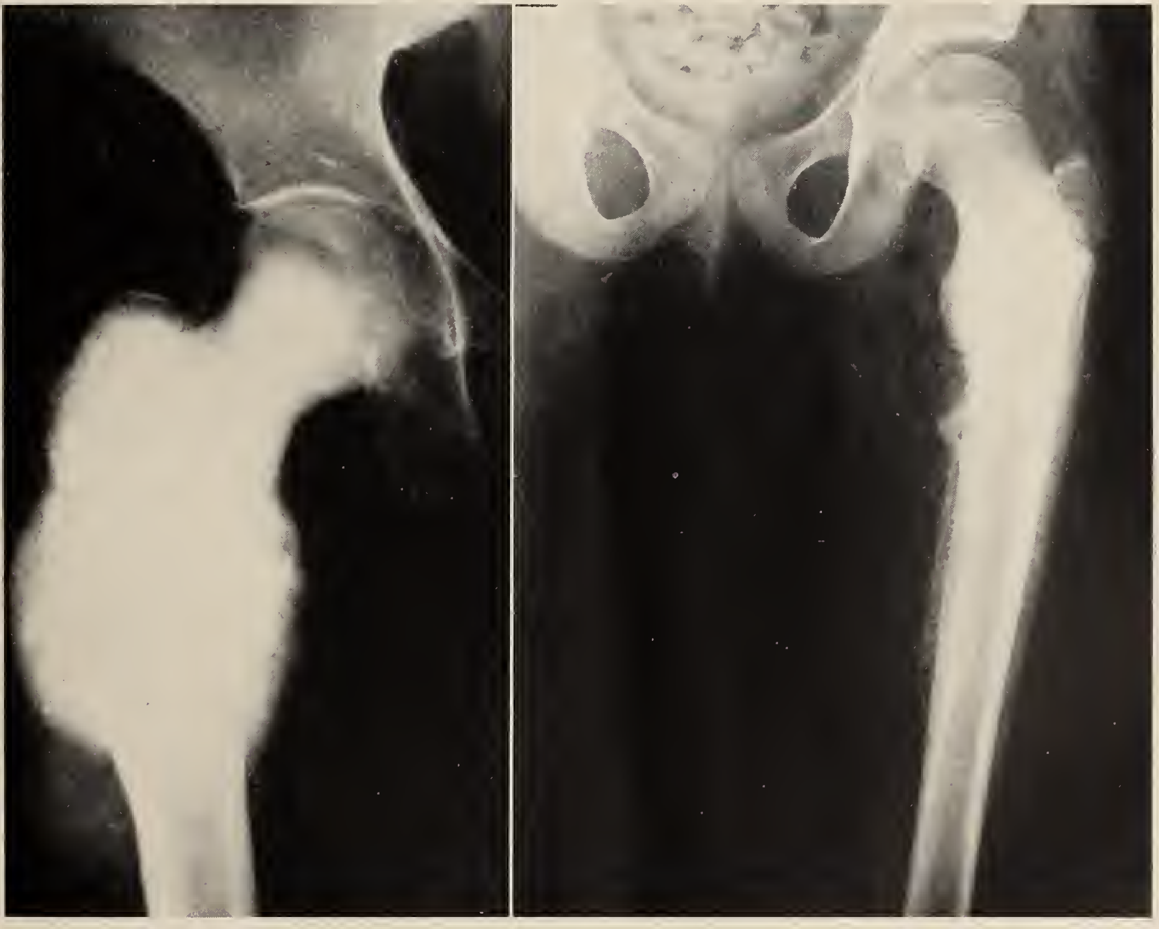

Figure 6. (*Left*)—Sarcoma of the femur (osteoblastic type) in a patient 40 years of age. Positive diagnosis by biopsy. Patient refused amputation and died in six months of pulmonary metastases. Note marked sclerosis of bone with much newly formed bone; no destruction.

(*Right*)—Sarcoma of the femur (Ewing's type) in a 10-year-old patient. Note extensive new bone formation and architectural changes. At onset of trouble patient had fever with pain. A diagnosis of osteomyelitis was made and the femur was drilled. No biopsy was taken at that time. Biopsy later revealed typical Ewing's sarcoma. This tumor is sometimes mistaken for osteomyelitis because of the common occurrence of fever in the early stages of the disease. X-ray therapy gave this child temporary relief, but she died later of cerebral metastases.

test of x-ray therapy or of taking a biopsy specimen, closing the wound and "sending the material to the city" for pathological examination cannot be too strongly condemned. The biopsy should be done with two tourniquets on the affected limb and the biopsy wound should not be packed but carefully sutured.

TREATMENT

The treatment of malignant bone tumors is amputation. On rare occasions wide excision of the tumor and surrounding structures is justifiable. Palliative x-ray therapy is helpful in certain tumors.

SUMMARY

Early recognition of the malignant tumors primary in bone offers the only hope for cure. Therefore the physician must have expert and adequate x-ray studies made in all patients with persistent bone pain.

Positive diagnosis can be made only by an expert pathologist. This necessitates biopsy and frozen section.

Any delay between the time suspicion of malignant tumor is aroused and biopsy is inexcusable.

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EDITORIALS

Physicians for the Armed Forces

Again the armed forces are calling for medical officers, and the need is urgent. The Army, the Navy and the Air Force, each has its own recruitment objective; each is short of medical officers to care for the augmented personnel under the country's present military program.

Physicians have shown great reluctance to offer their services to the armed forces, many of them doubtless because of reports of wasted effort and inefficiency prevailing during the war years. Some of these reports were undoubtedly true and some of the instances were probably inexcusable. On the other hand, the demands of a shooting war call for the standing-by of many specialty groups of officers, pending their call to emergency service when and where the need arises. Medical officers were, by and large, pretty well insulated from the problems of tactics and logistics confronting field commanders; in the circumstances it is easy to see how many doctors could arrive at conclusions which would lead to disparagement of the way of life of medical officers in the armed forces.

Today the country is at peace. The armed forces are better stabilized, each branch with its own program of utilization of personnel and each in position to assign specialists where they are actually needed. In addition, the armed forces have acted vigorously to overcome their own admitted shortcomings in attracting professional personnel. Postgraduate and study opportunities have been vastly enlarged and improved. Consultation with leading civilian specialists has been arranged on a scale and in a manner to permit the young medical officers to rub shoulders with leading medical specialists and to absorb knowledge from them. Clinical opportunities have been augmented and paper work has largely been relegated to trained ancillary personnel.

On top of that, pay scales and allowances have been made more attractive. And wartime living conditions have been supplanted by peacetime improvements which offer the medical officer and his family a chance to live decently, in good company.

When Congress was setting up the present draft law a couple of years ago, the original bill called for authority to conscript medical and other professional officers up to the age of 45 years. Medical associations throughout the country resented this provision as a slur on the splendid record of patriotism which had caused the profession to oversubscribe its personnel quota whenever the country had gone to war. The Congress took out that provision, relying on the profession to meet the demands for medical officers in the peacetime services. At the same time, a number of physicians who had been trained at federal expense under the V-12 or ASTP programs were available for two-year tours of duty in accordance with their educational agreements.

Today we find that these young doctors are finishing their tours of duty and are turning to private practice at the earliest opportunity. We also find that many young doctors who were deferred from wartime military service because they were in medical school at their own expense are reluctant to offer their services.

Medicine owes a debt to the armed forces for the manner in which the profession was treated during the war years. Many physicians owe personal debts to the armed forces, either for furnishing their medical education or for deferring them from active service because they were engaged in securing a medical training at their own expense. Some of these physicians have volunteered their services; many have not.

The California Medical Association has officially notified the armed forces of its desire to cooperate in the procurement of needed medical officers. The Association realizes that throughout the state there are a number of physicians who have a moral, if not a legal, obligation to the armed forces and who have not yet come forward to stand their turn in the line of duty. The county medical societies have been asked to help locate such physicians and to urge them to come front and center. This request is here reiterated, with the greatest urgency. The alternative: Conscription of doctors up to the age of 45 years, which might entail the drafting of many men who have already earned the right to private practice by having given of themselves patriotically during the 1941-1946 period.

The county medical societies may well wish to ask their available colleagues if it isn't better, here as in sickness cost insurance, to solve this problem in the voluntary, not the compulsory, way.

Medicine and Animals

Again in 1949, even as in 1948, in 1947 and in years before, antivivisection legislation has been appearing before our state legislatures. And again, even as in earlier years, a campaign of babies versus dogs has eventuated.

Doctors are getting a little fed up with this sort of legislative legerdemain, a little tired of having to justify their laboratory work in terms of emotionalism. Particularly are they tired of having to pull out some of the emotional stops instead of sticking close to their scientific sphere. On the other hand, they recognize the processes of democracy at work in such legislative attempts.

Our system of government is based on the right of the people to petition for change. Their petitions may be well or ill founded; they may be accepted or rejected. Regardless of origin, such petitions are granted the right of full hearing, full discussion, full consideration, before any final decision is reached. People who would sponsor legislation for antivivisection, or for any of a variety of subjects which might run the gamut from the facetious to the paranoic, still have the right to make their views and wishes known, provided only that they are able to find a member of a legislative body who is willing to introduce a bill which would carry out their proposals.

In 1949, as in years past, we have seen another rash of antivivisection bills brought forth, in our own state as well as in sister sovereignties. We have also seen the introduction of measures which would place a legitimate restraint on the use of animals in experimentation by providing for the inspection and licensure of premises and institutions where such experimentation would take place. Bills of this character are designed to put a stop to any possible illicit use of animals in unsupervised and unregulated experiments while, at the same time, they provide an official and publicly-regulated supervision of all premises and auspices which would seek to employ animals in their scientific march.

It is a sad commentary on the followers of the antivivisection cult that they are not content to permit legislative passage of such measures. Such bills actually would purely serve the antivivisectionist cause—the prevention of illicit and medically-opposed experimentation not based on science and possibly containing elements of sadism in unorthodox individuals. Nevertheless, some of these cultists carry on to great lengths in voicing their opposition to even this type of legislation.

A recent report from the nation's capital told of the packing of a hearing room in Congress with antivivisectionist followers who openly cried and wailed over a proposal for the release of doomed pound animals to approved research institutions. These so-called animal lovers were horrified by a request that the pound animals, strays which were picked up and held in public custody because their former owners were not enough interested in them to seek their whereabouts, be turned over to laboratories for scientific purposes rather than put to death in the functioning of health laws.

All in all, 1949 looks like another year of stalemate in the realm of animal experimentation. Dog and cat lovers voice their pleas; scientists ask that animals slated for the gas chamber be made available for humanely governed experiment for the advancement of scientific medicine. Neither side seems to be gaining much headway and neither seems discountable for future years and future legislative sessions. It looks as though dogs versus babies will be with us for a long time to come.

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NOTICES AND REPORTS

C.M.A. House of Delegates Proceedings

May 8, 1949

The first meeting of the House of Delegates of the California Medical Association convened in the Music Room of the Biltmore Hotel, Los Angeles, California, Sunday, May 8, 1949. The Speaker, Dr. Lewis A. Alesen, of Los Angeles, California, called the meeting to order at 5:00 p.m., and presided.

Speaker Alesen: Will the meeting please come to order.

The Chair will recognize Dr. Carl Hadley of San Bernardino, chairman of the Committee on Credentials.

Dr. Hadley, will you give your report to the House at this time.

Dr. Hadley: Mr. Chairman, the Committee on Credentials wishes to report we have registered a sufficient number for a quorum.

Speaker Alesen: A motion is in order to accept the report of the Committee on Credentials as constituting the roll call for this meeting.

A Member: I so move.

A Member: Second.

The motion was put to a vote and was unanimously carried.

Speaker Alesen: I now state this House is duly constituted.

At this time the Chair wishes to make the announcements of the Reference Committees appointed in accordance with the By-Laws.

Committee on Credentials: Carl M. Hadley of San Bernardino, chairman; Stanley R. Parkinson of Yuba County, Frank G. Crandall of Los Angeles.

Reference Committee No. 1:

Reference Committee on the Reports of Officers, the Council and Standing and Special Committees: Eric Royston of Los Angeles, chairman; Ivan C. Heron of San Francisco; Burt Davis of Santa Clara.

Reference Committee No. 2:

This is the new committee or a rearrangement of the old Committee No. 2 to handle the financial matters. Committee on Finance to review the reports of the Secretary-Treasurer and the Executive Secretary and to study and make recommendations to the House of Delegates on the budget submitted by the Council and the amount of dues for the ensuing year: Alson R. Kilgore of San Francisco, chairman; Stanley R. Truman of Alameda County, and G. Wendell Olson of Orange County.

Reference Committee No. 3:

Reference Committee on Resolutions, Amendments to the Constitution and By-Laws and New and Miscellaneous Business: Francis E. Jacobs of San Diego, chairman, and M. Laurence Montgomery of San Francisco.

Reference Committee No. 4:

This is a new committee this year—Reference Committee on Executive Session. J. Norman O'Neill of Los Angeles, chairman; A. A. Morrison of Ventura County and Dave F. Dozier of Sacramento County.

If I hear no objection from the members of the House, these committees will have your approval.

At this time, ladies and gentlemen of the House of Delegates, it is my pleasure to present to you our President, Dr. E. Vincent Askey, who will give us an address. Dr. Askey. (Applause.)

Dr. Askey: Mr. Speaker, members of the House of Delegates: My address will be very short because I know you have a lot of work to do. I merely want to express to you my appreciation in a personal way for the support that each and every one of you has given to me during the year which has been rather full of effort and full of many things we had to do. But it has been a pleasure to me to know that I have had your wholehearted support and I have not asked of you a single thing that you haven't done with the fullest cooperation.

I want you to know that I appreciate it from the depth of my heart and I thank you for the honor that you have given me.

And with that my address consists of 2210 West Third Street. Thank you. (Applause.)

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Speaker Alesen: It says here in the printed agenda, "Miscellaneous announcements by the Speaker." Mr. Hunton wants to call your attention to the fact there will be available in Room 2341 stenographic service between the hours of 6:00 and 7:15 during our recess. Stenographic help may be given you in the preparation of the resolutions which can later be presented to the House this evening.

Your attention is called to the fact that all resolutions must be presented immediately in triplicate in order to conform with the provisions of the By-Laws. Also, will the chairmen of the Reference Committees please be prepared at the end of this meeting to announce the time and place of meeting of their respective committees in order that members of the House of Delegates who wish to appear before these committees may be so informed.

At this time we will have the report of the Council. In the absence of Chairman Edwin L. Bruck, Dr. Sidney Shipman will give the report of the Council. Dr. Shipman.

REPORT OF THE COUNCIL

Dr. Sidney J. Shipman: Mr. Speaker, members of the House, there is no further report except as follows: The Council met yesterday and this morning as required by the Constitution and By-Laws. It will submit the budget to the proper committee and has made the recommendation that the dues be reduced. We thought that would meet with your approval. (Applause.)

Following is the proposed program of the California Medical Association for the improvement of medical care, which also was passed. It was thought advisable that we should have a set of principles similar to the principles which were enunciated by the A.M.A., and a request has been made for such principles to be recommended by the California Medical Association.

The following are proposed:

1. *Health Insurance.* Further development and wider coverage by voluntary medical care and hospital plans (both medical association and insurance company sponsored) to meet the costs of illness. Aid to the indigent by the utilization of these plans by the several counties, with local administration and determination of needs.

2. *Public Health.* Coordination and integration of all public health activities, except those of the medical services of the armed forces, under the State Department of Public Health. Incorporation in local public health units of such services as communicable disease control, vital statistics, environmental sanitation, control of venereal diseases, maternal and child hygiene and public health communicable disease laboratory services.

3. *Rural Care.* Encouragement of the development by professional and lay organizations of medical and hospital services for rural areas, and of the integration of those services with regional county hospitals and small institutions.

4. *Mental Hygiene.* Continued development of the state program of mental hygiene.

5. *Chronic Diseases and the Aged.* Aid by the voluntary and state welfare agencies, combined with professional and other services, in the provision of care and rehabilitation of the aged, and those with chronic disease, and various other groups not covered by existing arrangements.

6. *Industrial and Preventive Medicine.* Greater emphasis on the program of industrial medicine, with increased safeguards against industrial hazards and prevention of accidents occurring on the highway, in the home and on the farm.

7. *Veterans' Medical Care.* Integration of veterans' medical care and hospital facilities with other medical care and hospital programs and with the maintenance of high standards of medical care, including care of the veteran in his own community by a physician of his choice.

8. *Health Education.* Health education programs administered through suitable local educational, health and medical agencies to inform the people of available facilities, and of their own responsibilities in health care.

9. *Medical Education and Personnel.* Promotion of private financial assistance to medical, dental and nursing schools and other institutions necessary for the training of specialized personnel required in the provision and distribution of medical care. Revision of income tax and estate tax laws so as to encourage people to donate needed assistance to medical and associated professional education.

10. *Medical Research.* Continued promotion of medical research through private grants to institutions equipped and staffed to carry on qualified research.

That is the proposed program of the California Medical Association for the improvement of medical care. Thank you. (Applause.)

Speaker Alesen: One addition to this report has been made: "No. 11, *Postgraduate Education.* Expansion of the postgraduate training program of the California Medical Association to assist practitioners in rural areas in keeping abreast of the latest advances in medicine."

This report of the Council with the addenda thereto will be referred to Committee No. 1.

Next is the report of the Trustees of the California Medical Association. E. Vincent Askey, is there anything to report?

President Askey: Mr. Speaker, no further report.

Speaker Alesen: That report will be referred to the Reference Committee on Finance.

Report of the Auditing Committee. Dr. Sidney J. Shipman.

Dr. Shipman: No further report.

Speaker Alesen: That report will be referred to Committee No. 2, inasmuch as that committee has to do with considering dues and financial aspects.

Report of the Secretary, Dr. L. Henry Garland.

Dr. Garland: Mr. Speaker, nothing to report.

Speaker Alesen: That will be referred to Committee No. 2.

Report of the Executive Secretary, Mr. Hunton.

Secretary Hunton: Mr. Speaker, nothing to report.

Speaker Alesen: That will be referred to Committee No. 2.

Now, the report of the Editor, Dr. Dwight L. Wilbur.

Editor Wilbur: No additional report, Mr. Speaker.

Speaker Alesen: It will be referred to Committee No. 1.

Reports of District Councilors. Do any of the District Councilors wish to add to the reports as they have been printed in the Annual Reports Bulletin? We shall not call them out by name. If any one of the Councilors so wishes, will he please so state?

(No response.)

Report of the Councilors-at-Large. Is there anything to be added in this report?

(No response.)

Report of Legal Counsel. Mr. Hassard, do you have anything additional to give us at this time?

(No response.)

If not, the reports will stand as printed in the Annual Reports Bulletin and will be referred to Committee No. 1.

Now, the Standing Committees. The Executive Committee. Dr. Sidney J. Shipman, do you have anything further to add?

Dr. Shipman: No addition.

Speaker Alesen: Referred to Committee No. 1.

Committee on Associated Societies and Technical Groups, Dr. Robert A. Scarborough.

Dr. Robert A. Scarborough: No additional report.

Speaker Alesen: Referred to Committee No. 1.

Committee on Health and Public Instruction, Dr. Orrin Cook.

Dr. Cook: No further report.

Speaker Alesen: It will be referred to Committee No. 1.

Committee on History and Obituaries, Dr. Morton R. Gibbons, Sr. Have you any additional report, Dr. Gibbons?

If not, it will be referred to Committee No. 1.

Committee on Hospitals, Dispensaries, and Clinics, Dr. Carroll B. Andrews. Is there any further report, Dr. Andrews? Committee No. 1.

Committee on Industrial Practice, Dr. Donald Cass.

Dr. Cass: No further report.

Speaker Alesen: Committee No. 1.

Committee on Medical Defense, Dr. Nelson Howard.

Dr. Howard: No further report.

Speaker Alesen: Committee No. 1.

Committee on Medical Economics, Dr. H. Gordon MacLean.

Dr. MacLean: No further report.

Speaker Alesen: Committee No. 1.

Committee on Medical Education and Medical Institutions, Dr. L. R. Chandler.

Dr. Chandler: No additional report.

Speaker Alesen: Committee No. 1.

Committee on Organization and Membership, Dr. Carl L. Mulfinger. Have you any additional report?

(No response.)

If not, Committee No. 1.

Committee on Postgraduate Activities, Dr. John C. Ruddock. I know Dr. Ruddock has a special report he wishes to make. The Chair will recognize him at this time.

REPORT OF COMMITTEE ON POSTGRADUATE ACTIVITIES

Dr. John C. Ruddock: Mr. Speaker and members of the House of Delegates: During the past year, your committee has met on a number of occasions, concerning postgraduate activities for the membership of the California Medical Association.

Your committee wishes to thank the Council of the California Medical Association for its cooperation and understanding of the problem in California, and for making available funds, clerical help and office space, in order to carry on this project.

The problem is not an easy one. Simply stated, its purpose is to give an opportunity to members of the California Medical Association, and especially to those members who are practicing in the areas not immediately adjacent to teaching centers, an opportunity to advance themselves in the practice of medicine and its specialties, by postgraduate study. Your committee was faced immediately with numerous proposals concerning the methods by which postgraduate facilities could be made available to our membership.

Before adopting any policies we sent Dr. Andrews, our Director, to other states that had an established program in operation. In particular, we surveyed the plans of New York, Pennsylvania, Michigan, Tennessee and Oklahoma.

In addition, various plans, as adopted by various universities for postgraduate study, were reviewed. None of these plans could be applied to California as a whole. This state is large, distances are great, there are large metropolitan areas and sparsely settled rural areas. There are four large high class medical schools, each with its own postgraduate departments. In addition, operating on separate budgets and independently, conducting postgraduate programs, are a well-established public health department as part of the state government of California, the California Tuberculosis and Welfare Department, the Cancer Commission, and the California Heart Association.

The problem affected primarily those doctors who were not adjacent to the four major universities, situated in San Francisco and Los Angeles.

There are approximately 4,000 members of the California Medical Association who should be considered as non-metropolitan doctors.

Early, your committee realized that a survey of these non-metropolitan members would elicit 4,000 separate programs of postgraduate education. It then became necessary for your committee to decide what the doctors needed and to make it available for them, attempting when possible to accede to the wishes of the majority.

After much study your committee has adopted the following policies:

The California Medical Association shall not attempt to set up, organize, or run a postgraduate school.

Two, the Committee on Postgraduate Activities shall act as a liaison between the medical schools and other organizations and departments and keep the membership advised of postgraduate activities available throughout the year, within the State of California.

Three, the Committee on Postgraduate Activities will arrange postgraduate seminars at selected centers within the state which are easily accessible to most of the 4,000 non-metropolitan members. These conferences will consist of didactic lectures and clinical demonstrations. An honorarium will be paid the speakers or instructors. Traveling expenses and other miscellaneous costs will be absorbed by the association.

Four, the Committee on Postgraduate Activities will assist universities and all other departments and organizations in arranging dates and places of meetings to avoid conflict and duplication, and in any other manner will encourage postgraduate opportunities for the members of the California Medical Association.

Five, the Committee on Postgraduate Activities will not attempt to give under its sponsorship any courses for certification in a specialty.

Six, except for the publication of opportunities for resident and intern training, the Committee on Postgraduate Activities will not concern itself with this type of training.

With the adoption of the above policies, Dr. Carroll B. Andrews was engaged as Director of Postgraduate Activities. He gives the association one-half of his time at a salary of $6,000 per year. Dr. Andrews has ably and excellently fulfilled the duties of this position.

Since March 1, 1948, thirteen postgraduate seminars have been held under his direction as follows: San Luis Obispo, Marysville, Redding, Santa Barbara, Riverside, Monterey, Modesto, San Diego, San Bernardino and Fresno. There have been two conferences held on separate dates at El Centro and Santa Rosa.

The total attendances at these meetings has been 733, varying from 16 to 109. The total cost of the 13 seminars was $4,618.98, and the cost per person attending amounts to $6.30.

When we add the salary of the director your committee has spent a total of $10,618.98, or a cost per person attending of $14.48. The cost per seminar amounts to $816.84. A detailed statement of expenses is appended. With the experience of the past year your committee wishes to make the following proposals:

1. That the Council of the California Medical Association be directed to continue the allocation of funds for carrying on the policies as adopted by your committee, and to make available to the members, and especially the non-metropolitan members of the California Medical Association, postgraduate opportunities.

2. That an office assistant to the Director of Postgraduate Activities be engaged full time as soon as practicable and that adequate office space be made available so that the Director will be free for the field.

3. That an Advisory Committee be appointed to meet with the Standing Committee at least once yearly, in order to implement and arrange the programs and type of instruction to be given in the various localities about the state. It is proposed that this committee be composed of the following: (a) One representative from each of these medical schools, University of California, Stanford, University of Southern California, U.C.L.A. and Medical Evangelist; (b) one representative from the Cancer Commission, Public Health Department, California Tuberculosis Association, and California Heart Association; (c) a surgeon, an internist, a pediatrician, a general practitioner, and an obstetrician selected at large.

4. That the expenses of these 14 members attending the Advisory Sub-Committee meetings with your committee shall be absorbed by the California Medical Association.

5. That the California Medical Association continue its membership in the National Postgraduate Association of the A.M.A. and that a representative of the Postgraduate Committee be selected to attend that group's yearly meeting and such other meetings as are considered necessary and advisable by the committee and Council of the C.M.A.

6. That the Postgraduate Committee cause to be published in each issue of CALIFORNIA MEDICINE all postgraduate programs and opportunities fostered by the universities and other organizations available within the state.

7. That the Postgraduate Committee encourage and assist the various county medical associations and their committees in order to foster postgraduate studies at the county and local levels.

Respectfully submitted, Committee on Postgraduate Activities, John C. Ruddock, chairman. (Applause.)

Speaker Alesen: Thank you, Doctor. This report will be referred to the Reference Committee No. 1.

Committee on Publications, Dr. George Dawson.

Dr. Dawson: No further report.

Speaker Alesen: Committee No. 1.

Committee on Public Policy and Legislation, Dr. Dwight H. Murray. Is Dr. Murray here?

Dr. Murray: Yes.

Speaker Alesen: You know, ladies and gentlemen of the House, I am no expert at gilding the lily. But I would like, in introducing this man, to call your attention to the excellent work he has done and is doing on behalf of organized medicine.

It is a pleasure to present our chairman of the Committee on Public Policy and Legislation, as well as Trustee of the American Medical Association, as well as the holder of many other offices. Dr. Dwight Murray of Napa. (Applause.)

REPORT OF COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Dr. Dwight H. Murray: Mr. Speaker, members of the House of Delegates: I am very glad to report to you some of the results of the work of the Legislative Committee. Some of our work has not been so successful as we would like to have had it, but nevertheless I shall report it to you as is.

As you have heard, there were something over 5,000 bills introduced into the Legislature at Sacramento, something a little bit less than 500 having to do with medical care and public health. It has been difficult to keep track of all those bills. Any and all of those bills are subject to amendment at any time and what may look like a good bill one minute can be amended so it is a bad bill the next.

I want to make perfectly clear that your Legislative Committee does not in itself decide whether it will support or oppose a measure. That we do at the direction of the Council. Only in cases of amendment or in cases where immediate action is necessary does the Legislative Committee take the decision unto itself.

I wish you to keep in mind that before the next meeting of the House of Delegates, we will have an election campaign under way. I ask that you talk to the men who are candidates to determine that they think rightly about compulsory health insurance.

I would like to make this a recommendation to the delegates: In talking to your prospective candidates that you ask them to discuss with you, if possible, any bill that might pertain to legislation in any way affecting the practice of medicine, before they endorse that bill or before they become an author of the bill.

Now, many times legislators will put their name on a bill as author or co-author, without particularly knowing what is in the bill. And if you can discuss it with them or if you will ask the legislators if they will talk with you and get your advice and suggestions before they sponsor a bill, we will go a long way toward solving and correcting some of the evils that exist at the present time.

After all of these bills are analyzed, then comes the problem of properly disposing of them, and in the proper way.

We have had an unfortunate experience this year that we haven't had in years past. Your Legislative Committee spent a great deal of time in analyzing all the bills introduced. We had our Legal Department assist us in this. The Councilors themselves were called upon. The Chairman of the Council, Chairman of the Executive Committee of the Council, and different members of the Council were asked to help us in analyzing these bills to determine which should be opposed and which supported.

Finally, after a meeting—an all-day meeting, I should say, and then some—of the Council in San Francisco early in March, it was decided on which bills we would support and which we would oppose.

That list was made up and was sent out to the presidents, the secretaries of the component county societies, and to the various key men through the various counties, so there would be no question in anybody's mind about what bills we would oppose and which ones we would support.

We thought that would guide them properly. This was all done at the direction of the Council and not at the direction of the Legislative Committee.

However, one county society decided that it would take the matter into its own hands and its own legislative committee would go over the bills and would do as it saw fit about some of the bills.

One of the bills we were particularly interested in. We wanted to oppose the bill. The county society looked over the bill and thought there was no reason to oppose it. They so notified their senator, with the result we lost the bill in committee.

Now, gentlemen, any local society, I think, may look at legislation from somewhat of a local point of view rather than an over-all point of view, which the Council is able to do, and you can readily understand that that plays some havoc with your Legislative Committee. I trust that shall not recur.

Now, as to the particular bills that we have had.

It is always necessary to go over the Medical Practice Act. You understand that our Medical Practice Act changes from day to day. That is, the need for changing it, I should say. Oftentimes this Medical Practice Act would seem to be all right. It may be all right in 1947, and might not be all right in 1949.

So there was an interim committee of the Senate, headed by Senator Hugh M. Burns of Fresno, who studied this problem, and the committee introduced some 14 bills of its own, to change the Medical Practice Act, to tighten it here and loosen it there, and so on.

Most of these bills have passed or are in the process of being passed.

In addition, the Board of Medical Examiners sponsored some bills they wished to be considered, and they have all been considered on the whole favorably, and the ones that have not been acted on favorably, I think, will be before the session is over.

Now, one of our old bills that we have had before us a long time is the anti-vivisection bill. I graduated from medical school a great many years ago, which you all know, and I remember at that time anti-vivisection was considered, and I think it has been considered in every session of the California Legislature for the last 20 years, at least.

The deans of our medical schools, two years ago after appearing in Sacramento to oppose a very obnoxious bill, decided they would draw up a bill of their own, and they established a committee to work on that.

They studied it not only from the California point of view, but from the point of view of the other states, New York, Massachusetts, Illinois, and a great many other states, in order that they might be able to draw a bill that would be right.

They spent a lot of time on it, and the result of their efforts was shown, and the deans of all medical schools and representatives of all medical schools came to Sacramento and stayed overnight and helped us with these bills.

I will tell you it was a grand feeling to have, to be able to say, as I did, to the members of the committee, "You now have the top-flight medical men of the State of California. If you have any questions you want to ask, or any information you want to get, here is the place to get it."

The bill was presented in a very, very nice way, and the bill went to committee, I am hoping without a single objection in any way, and went out with the recommendation to pass.

Now, that bill means that all laboratories dealing with experimental animals will be under the direction and licensing of the Department of Public Health, and that the Department shall inspect and they shall ask and advise and seek changes that are necessary and correct any evils that exist.

That satisfies a great many of the people who have been opposing this. Of course, there are many of the good-doers and die-harders that you will never satisfy.

Probably the worst bill we have to oppose, the most difficult one, is that pertaining to compulsory hospital insurance. That was tacked onto a bill of disability insurance.

There are about 30 bills introduced having to do with disability insurance, one way or the other. This bill would have been very definitely the entering wedge for compulsory insurance in California. That bill was opposed very vigorously and the doctors of the state responded beautifully when we asked them to come to Sacramento.

They came in twos to Sacramento and stayed overnight. They spent the day. They spent the night with their Senators telling them what they thought of the bill and what they thought it would mean and why they opposed it.

So, that bill was left in committee. However, it still remains a dangerous bill. It is possible to tack that on as an amendment to some 15 or 16 bills that are still before the committee. So far, we have won the first round on that bill. Just what the result will be later is still to be determined. We hope we will be successful.

Then, our friend the Governor had his bill. It was the identical bill he had in 1947, identical, as to period, semicolon, and whatnot.

After very much discussion around the halls and corridors of the Capitol about this bill, what it might mean, what it might not mean, we had our hearing. At that time we were beautifully assisted as we were in the hospital bill that I mentioned, by insurance, by agriculture, by business generally, the Chamber of Commerce, Los Angeles Chamber of Commerce, the hospitals of California, and by our doctors.

We had two doctors. I shall call them by name now. Dr. Clifford Loos of Los Angeles, because he represented a group of voluntary insurance on a private basis. He made a very fine showing before the committee.

And then, Dr. Alson Kilgore, who, as you all know, has helped us so ably in the past, put on the finishing touches. At the conclusion of Dr. Kilgore's statements, the chairman said, "I see there are two members of my committee who are not here. It will be necessary to take the bill under advisement," where it still remains. We have not heard further.

Then, our old perennial. We have developed in California various specialists and we have developed a specialist on naturopathy legislation in Dr. Homer Woolsey of Woodland. It has been Dr. Woolsey's assignment for the last 25 or 30 years or so to come over to Sacramento and oppose this bill, which he does very well.

At present it is in committee, and we may or may not hear more from it. But that requires lots of time and lots of effort, and lots of danger of trading and all that sort of thing that takes place when bills like that come up.

This is what they will say: "Now, Doctor, we are all overboard for you so far as compulsory health insurance is concerned. But, now, this little innocuous bill here can't possibly bother you, because you are a doctor. And you know, my friend sponsored this bill and I want to give him a vote on that because I want him to give me a vote on my fixing up orange crates, or something like that."

Now, that is what I mean by trading, and that is why these seemingly innocuous bills cause us considerable headache.

Now, the bill on osteopathy. Frank MacDonald of Sacramento has qualified himself as being a specialist on osteopathy legislation and will oppose that bill for us when it appears.

Now, if Dr. MacDonald calls on you to come to Sacramento on that day, I want you to bring your wife and children, grandchildren, and come up and fill that committee room so full there won't be any room for anybody else to get in. Now, don't forget that.

Senate Bill No. 11 was a bill giving optometrists rights to do things that we think they shouldn't.

That bill was opposed in committee, but it was lost. It was passed out of committee. This was a Senate bill and it passed the Senate. We will have to oppose it in the committee in the Assembly.

That bill has not been set for hearing in the Assembly as yet.

Then we have the physical therapy bills. The physical therapy bills are in two groups—the American Physical Therapists and the Physical Therapists of California. The American Physical Therapists are the ones we believe have the proper bill and we are having a little trouble getting these two together. We will have to do it. An amendment has been offered and we will have to consider that.

Then, we have the rebate bill. That is a thing that has been talked about in California as well as the rest of the United States. The rebate bill was introduced by the chairman of the Interim Committee in the Senate appointed to study this problem. He introduced the bill that would not only apply to the practice of medicine but to other professions and business as well.

I would just like to tell you a little bit about what happened at that time.

The Senate Interim Committee referred to previously introduced a bill to abolish rebating. There apparently was no objection to this bill, but when it was heard before the committee Mr. Bauer of the Los Angeles Better Business Bureau told the committee he felt the bill was too broad since it included commercial firms as well as physicians. It was his idea to hit directly at the physicians, leaving everybody else out. His remarks opened up the subject to the extent that committee members felt the bill was not broad enough and should cover all lines of commerce. As a result, the author of the bill was instructed to amend it to make it broader. In his speech before the committee Mr. Bauer made repeated reference to doctors, carrying his references to the extent that Senator Kraft of San Diego rebuked him for, as he put it, "continually harping upon the doctors."

Now, I just give you this so that particularly you people from Los Angeles may know what we have to endure up there sometimes.

Now; the nurses' bill. You heard about that problem. But the nursing bill was introduced. We have a bill of our own but we decided not to push our bill particularly. We thought it was possible that the nurses and the hospitals might get together. There seemed to be considerable confusion before the committee, so much so that the chairman of the committee appointed sub-committees to study the problem and hear amendments. When the sub-committees reported back, there were so many amendments suggested by the nurses and by the hospitals that the bill was in complete confusion.

I don't think anybody understands it, and I am sure the doctors present didn't understand it, and it is still in the state of confusion. It is resting before the committee. What will be done by the committee, we don't know.

Now, these are just some of the highlights that I have tried to give you. If there are any particular bills that any of you are interested in, I would be glad to discuss them with you at any time. Or, if there are any you wish to ask about now, I will be glad to answer your questions if I can.

The problem in Sacramento this session has been the worst that I have experienced. I have been there since 1940 and this has been the worst session because there have been more bills, more committee hearings, more amendments suggested to the bills which require more constant watching and more burning of the midnight oil than at any other time.

I want to leave you with this idea. First of all, I wish to say that doctors all over the state and various members of the California Medical Association, including our President, who came to Sacramento and had a rather tough time before the committee, also many other members of the California Medical Association, have helped us no end.

This one thing I think we should think of finally, and this may meet with the approval of some of you and not of others. That is—and I say this because I have talked it over with Dr. Halverson—the various appropriations that are asked by the Department of Public Health. It has been pointed out that the Department of Public Health is growing into the biggest bureau that we have. And it won't be so very long until we won't have to worry about compulsory health insurance. We will have it wrapped up pretty well in our Department of Public Health.

The various appropriations that are asked are a bit astounding, sometimes, when you see the figures. We are not saying that there isn't reason for some of this, but the question comes about how much money should be expended. For instance, $900,000 is asked for the rheumatic heart disease program for the rest of this year. The next five years the expenditure is supposed to approximate around $6,000,000 for rheumatic heart disease.

We all know we have rheumatic heart diseases in California. We all know many people suffering from rheumatic heart diseases that need to have personal care as well as hospitalization, and so on.

All right, then comes cerebral palsy: $4,000,000 was asked for the purpose of erecting a hospital, and then $2,000,000 for the maintenance of that hospital as well as appropriations for the care of the chronically ill.

Also, $25,000,000 to aid in hospital construction. And that is in addition to some $16,000,000 to $17,000,000. That is in the budget.

Now, I leave it to you gentlemen if you don't think those figures are astounding enough that they should require the attention of the profession.

Again, I wish to thank all of the members who have helped so well, and I assure you that you will probably be called upon again because the session is a long way from over. (Applause.)

Speaker Alesen: That report will be referred to Committee No. 1.

Committee on Scientific Work, Dr. L. Henry Garland. Dr. Garland, have you any additions?

Dr. Garland: No additions, Mr. Speaker.

Speaker Alesen: Committee No. 1.

Cancer Commission, Dr. Lyell C. Kinney. Have you any additional report?

Dr. Kinney: No additional report.

Speaker Alesen: Committee No. 1.

Editorial Board, Dr. Dwight L. Wilbur.

Dr. Wilbur: No additional report.

SPECIAL COMMITTEES

Speaker Alesen: Delegates to the American Medical Association, Dr. John W. Cline. Is Dr. Cline in the house?

Dr. Cline: No additional report.

Speaker Alesen: Committee No. 1.

Physicians' Benevolence Committee, Dr. Axcel E. Anderson.

Dr. Anderson: Nothing to add at present.

Speaker Alesen: Committee No. 1.

Advisory Planning Committee, Mr. John Hunton.

Mr. Hunton: No additional report.

Speaker Alesen: Committee No. 1.

Committee on Revision of Constitution and By-Laws, Dr. Sam J. McClendon of San Diego.

Dr. McClendon, do you have a word for us at this time?

Dr. McClendon: Mr. Speaker, and members of the House, I would like to defer our report until Tuesday night as our information and some of the detailed things are not yet in order.

Speaker Alesen: I can tell the members of the House that this committee has been working hard and long at this job. So we have to accept their excuse.

Committee on Crippled Children's Act, Dr. Frederic Ewens. Dr. Ewens?

COMMITTEE ON CRIPPLED CHILDREN'S ACT

Dr. Ewens: Mr. President, Mr. Speaker, and members of the House of Delegates: At the 1948 meeting of the House of Delegates of the C.M.A., a resolution was adopted calling for the study of "The Authority Underlying the Crippled Children's Act." The Council of the C.M.A. set up a committee for this study and it has been my privilege to act as chairman, aided by John C. Sharp of Salinas and Lloyd Hardgrave of San Francisco. The committee has functioned and submits the following report:

It is the desire and intention of the committee to improve standards and facilities for needy, handicapped or crippled children. However, it is our considered opinion that the Crippled Children's Act, as it now stands, needs amendment and revision to insure that such needy handicapped or crippled children will receive such care.

It is further our opinion that the Act, as it exists at present, is too loosely drawn, and in many aspects is subject to constructive criticism.

We feel that the State Department of Health and its present administrative officers, who are responsible for the execution of the Act, are doing an honest, conscientious and sincere job in cooperation with the California Medical Association, the doctors of the State of California, and the hospitals of California.

In suggesting revisions to the Act, there is no intent to hamper the care of needy handicapped or crippled children, but it is our considered opinion that definite clarification of some of the sections should be made.

There is a possibility that at some future time there might be officials responsible for the Act who might develop a considerable bureaucracy, which would lead not only to resentment on the part of physicians, but also perhaps poorer care for those in need, because of regimentation and even a form of socialized medicine.

The administration of the Act should be based on the language of the law and not on the changing administrative personnel.

In the hands of unreasonable or bureaucratic persons, the statute as it now stands, we feel, would compel the State of California to care for all children from the age of birth to 21 years of age.

In Article 2, Section 249, the words, "Developing and extending" as viewed by the committee are too hazardous, in that the official in charge can develop and extend without additional legislation into a bureaucratic dictatorship. The committee recommends elimination of these words.

We believe that the terminology, as presently used and interpreted, means to improve the care of needy crippled children and to bring into effect services for such needy children where they are not available. However, another connotation may be put on this, as stated previously.

Section 250 describes a handicapped child as a "physically defective or handicapped person under the age of 21, who is in need of services."

In Instructions, the Department of Health in interpreting the section has under Paragraph 5 given "ear conditions leading to loss of hearing, such as chronic otitis media and chonic blocking of the Eustachian tube."

Under Paragraph 6 of the instructions from the Department, rheumatic heart disease and congenital heart disease are classified as crippling deformities. We recognize that congenital heart disease is a crippling disease, and this might come under purview of the Crippled Children's Act, but if rheumatic fever or rheumatic heart disease is an infectious process, then any other form of infection is a crippling form of disability, and, if one organ can be crippled due to infection, then any other organ can be crippled due to infection and, therefore, any infectious process leaving any damage to any other organ of the body could be classified as a handicapping disability. And, hence, the individual could be called a crippled child.

We, therefore, question the wisdom of including rheumatic heart disease and other diseases as being conditions which have been commonly accepted as crippling.

Section 251, "Defining Services": Services listed in this article include any or all of the following:

(a) Expert diagnosis.
(b) Medical treatment.
(c) Surgical treatment.
(d) Hospital care.
(e) Physiotherapy.
(f) Occupational therapy.
(g) Special treatment.
(h) Materials.
(i) Appliances and their upkeep, maintenance, care and transportation.
(j) Maintenance, transportation, or care incidental to any other form of services.

Under item (a), "Expert diagnosis" should read, "Proper diagnosis and treatment." Item (g), "Special treatment," needs further definition and clarification. Item (j), "Maintenance, transportation, and so forth," should be eliminated entirely.

Section 253. The words, "Expert diagnosis," found in line 4 should be eliminated and the words, "Proper diagnosis and treatment," used in their place. The following should be added to the end of the paragraph: "Diagnostic clinics or conferences herein mentioned are to be set up only in locations where such facilities are not available at present." This would save the duplication and building of public clinics adjacent to clinics or facilities now established.

Section 255. The committee decided that this section as worded permits too great a latitude for social workers to offer services, and we suggest the following: "The agency or social worker, designated by the Superior Court, shall have the proper power and authority to make inquiry into the financial needs and resources of the parents of the child for whom medical care is being requested."

Sections 254 and 255. In the phrase, "either wholly or partly unable," the word "partly" be removed. In paragraph (b) the sentence reads, "that the child need services"; we would have in addition, "as determined by a licensed physician." This would eliminate the possibility of a clerk overriding the decision of the doctor in the case.

Section 256. "Upon receipt of the authorization of the Department, shall furnish such services for the child as in its judgment are necessary and proper."

It should not be the province of the Department to determine the necessity and proper care of the handicapped child, but it is the responsibility of the doctor in charge of the child. The recommendations of the doctor based on his experienced judgment should only be carried out by the Department.

Section 270. Under "Annual appropriations" it should not be mandatory to collect 1/10 mil. Funds should be raised by the county as a county tax measure commensurate with the powers for so doing as set forth in the various county government acts.

This committee has devoted much time to the thorough study of this Act. I have hurriedly enumerated several dangerous parts which you can readily recognize as socialized medicine written under the guise of assisting the handicapped and crippled child.

Although at present the situation appears healthy, you are confronted with the possibility in the future of being faced with the problem of the doctor taking orders from a political or bureaucratic group.

The committee feels that the handicapped child fares much better if the doctor with his experienced judgment could have the power to guide the child's treatment.

It is obvious that the State has no specific power to investigate the financial status of the responsible parties who request help under the provisions of this Act.

Because of the mandatory provisions you are compelled to pay 1/10 mil toward building a bureaucracy in place of the regular county methods of taxation.

We of the committee hope that the House of Delegates will recognize the need for changes in this Act, and we request the Council of the C.M.A. to instruct the Legal Department to undertake the work of correcting these ambitious and ambiguous sections and to present them in the proper manner so that the plight of the needy handicapped and crippled children will be improved without destroying the free institution of the practice of medicine. (Applause.)

Speaker Alesen: Thank you, Doctor. The report will be submitted to the Reference Committee No. 1.

Now, the Committee on the Study of Alcoholism, Dr. Cullen W. Irish. Dr. Irish, have you any additional report?

(No response.)

I think the attention of the House ought to be called to the fact that when this committee's report was read before the Council, approbation was widespread.

Let's read the members of this committee: Cullen Ward Irish, chairman; J. Martin Askey, Hall G. Holder, George H. Houck, and Malcolm H. Merrill.

Now, the Blood Bank Commission, John Upton. Is there any additional report?

Dr. Upton: No additional report.

Speaker Alesen: Committee No. 1.

Committee on Industrial Health, Christopher Leggo.

Dr. Leggo: No addition.

Speaker Alesen: Committee No. 1.

Committee on Rural Medical Service, Carroll B. Andrews.

Dr. Andrews: No additional report.

Speaker Alesen: Committee No. 1.

Mr. Secretary, is there any old or unfinished business?

Secretary Garland: Mr. Speaker, no report.

Speaker Alesen: Members of the House of Delegates, there is one beautiful little chore I have the opportunity to do right now, the opportunity to call your attention to the services of the delegates who have served this House for 25 years. Dr. John Hunt

Shephard of Santa Clara County, will you please stand up and take a bow? (Applause.)

Now, Dr. Robertson Ward is recognized by the Chair for a discussion of the World Medical Association. Dr. Ward.

Dr. Ward: Thank you, Mr. Speaker. Dr. John Cline, who is chairman of the American Medical Association delegates, asked me if I would say a few words about the World Medical Association that has been recently formed and which you are urged as doctors of medicine to support and join, if you find it possible.

This organization, we feel, can do a great deal for medicine throughout the world in helping to spread medical knowledge, particularly in helping the doctors in the countries where the government has come to dominate the practice of medicine, to be cognizant of how free medicine is practiced.

It is for that reason I am addressing you now and urging your support of the World Medical Association. Thank you. (Applause.)

A Member: Mr. Chairman, I think Dr. Cline asked that we be told where we could get that information.

Speaker Alesen: Dr. Ward, would you answer the question? Where can the information be obtained?

Dr. Ward: Here at this meeting at the registration desk. And when you get home if you want to write the California Medical Association, their office will be able to give you all the information.

Speaker Alesen: The Speaker's attention is called to the fact he committed a serious error in overlooking another of our very fine senior citizens, Dr. Robert A. Peers from Colfax. Dr. Peers, will you stand, please? (Applause.)

Ladies and gentlemen, it is now 6:00 o'clock. It is the plan to recess this meeting until 7:15, at which time the place of the meeting has been changed to the Ballroom in order to accommodate the members of the Woman's Auxiliary.

The purpose of inviting the ladies to meet with us—of course we always look forward to having them with us—but on this particular occasion Whitaker and Baxter, our public relations counsel, will give a report of unusual interest to all of you.

Now, it has not been possible to get this information to the ladies, so will you please invite them, and please get back at 7:15 promptly so we can get started.

The meeting is recessed.

. . . The meeting of the House of Delegates recessed at 6:00 o'clock p.m. to reconvene at 7:15 o'clock p.m. the same evening. . . .

* * *

HOUSE OF DELEGATES
MAY 8, 1949

The first meeting of the House of Delegates of the California Medical Association reconvened in the Ballroom of the Biltmore Hotel, Los Angeles, California, Sunday, May 8, 1949. The Speaker, Dr. Lewis A. Alesen, of Los Angeles, California, called the meeting to order at 7:30 p.m., and presided.

Speaker Alesen: We told you earlier in the day that we had something very good for you at this session this evening.

By way of introduction I should like to quote one verse from a Kipling poem.

"But the woman that God gave him,
Every fiber of her frame,
Proves her launched for one sole purpose,
Armed and engined for the same,
And to serve that single issue
Lest the generations fail,
The female of the species must be
Deadlier than the male."

(Applause.)

Ladies and gentlemen of the House of Delegates and members of the Woman's Auxiliary, it is a pleasure to introduce the lady that I am going to introduce. This lady is from the firm of Whitaker and Baxter.

They tell me she is the power behind the throne. Her husband tells me she has written and is writing much of the material that is about to be used in our campaign to frustrate the enemies of good sound medicine.

Miss Baxter is a modest, mild-mannered woman, but don't let that deceive you. She wields a powerful hand.

Without further ado I want to introduce our public relations counsel, Miss Baxter. (Standing applause.)

Miss Leone Baxter: This isn't a lady's brief notes for a talk. It's a much more significant item than that.

This is the keynote of the doctors' campaign against government-controlled medicine. It's a proof of a poster designed for display in the reception rooms of the doctors of this country.

And because this national campaign is more or less California's baby, or at least its brainchild, we thought our California friends would like this little preview and explanation of the keynote poster.

This is a beautifully done reproduction of the celebrated Sir Luke Fildes painting, "The Doctor," with which every doctor and every doctor's wife is very familiar.

It shows the doctor, sitting in deep and intent concern at the bedside of his patient, a small child. It shows the parents hovering in the background, the mother in tears.

It is a human, moving scene. And it's a scene duplicated in its essentials hundreds of times by doctors in this room tonight.

Actually, it epitomizes something which doctors themselves never discuss much, the human factor in medical care, a factor which politically-controlled medicine would destroy utterly.

I'd like to read to you the interpretive caption which we have made a part of the reproduction. We tried very hard to write something that would accomplish our purpose and not impair the intent of the painting. I hope you'll agree that the result won't set the good Sir Luke spinning in his grave.

"Keep politics out of this picture.

"When the life, or health, of a loved one is at stake, hope lies in the devoted service of your doctor.

"Would you change this picture?

"Compulsory health insurance is political medicine.

"It would bring a third party, a politician, between you and your Doctor.

"It would bind up your family's health in red tape.

"Political medicine would result in heavy payroll taxes, and inferior medical care for you and your family.

"Don't let that happen here.

"You have a right to prepaid medical care, of your own choice.

"Ask your doctor, or your insurance man, about budget-basis health protection.

"Under voluntary health insurance, your health is your own business. Keep it that way."

When we left California to manage the national campaign against compulsory health insurance, Whitaker and Baxter had great misgivings as to whether the doctors of other states would be as alert as California doctors were to the danger confronting the American medical system.

Development of this poster, with this appeal as a symbol of the national campaign, was our way of finding out how 140,000 individual doctors feel about personal participation in the campaign.

Today, the orders for this poster, ladies and gentlemen, are pouring into the national headquarters at the rate of 6,000 a week, which, along with very active campaigns now generating in the states, provides us with the proof we needed, that doctors generally know the real gravity of the threat confronting them, and are ready for action to preserve their profession.

We've had lots of troubles and expect more.

But today, Whitaker and Baxter both have a feeling of exaltation about this campaign.

We feel that this crusade to keep American medicine free is the most vitally important peacetime happening we shall see in our lives.

We believe the outcome of this campaign will be a guidepost, pointing out a government trend, to the left or to the right.

We are convinced that on the determination of this issue will hang the future course of this nation.

Personally, Whitaker and Baxter feel that if, in directing this campaign for American medicine, we can play some small part in winning that broader battle, we shall have done something to compensate in some small way for the many good things the American system has done for us, and for other Americans like us.

I fervently hope that we can impart some of that crusading feeling to others, because I can think of no greater satisfaction that any of us might have than to know that for certain we have defended successfully our heritage of freedom.

Today, ladies and gentlemen, that freedom is threatened.

Without the slightest question, those who would quench that spark of freedom are moving politically toward responsible positions in our government.

When the spark of life flutters and threatens to go out, I know that doctors sometimes pray for miracles, and then help to perform them.

America, ladies and gentlemen, our whole country, needs a miracle today, if it's to survive as a free nation. And the first test is in the field of medicine.

American doctors never faced a greater crisis.

And never, ever, have they faced a greater challenge. (Applause.)

SPEAKER ALESEN: Thank you, Miss Baxter.

To introduce the next member of Whitaker and Baxter, we have asked our good friend Dr. Murray for an introduction. Dr. Murray.

DR. MURRAY: Mr. Speaker, Miss Baxter, Dr. Schriver, members of the Auxiliary and House of Delegates: I want to recount to you some of the things that happened in St. Louis that led to the appointment or the employment of the firm of Whitaker and Baxter. At the St. Louis meeting, which was soon after the November election, it was very evident that the American Medical Association was facing a very difficult problem, that of combatting compulsory health insurance on a national scale.

We were not in any way misled, nor were we in any way discouraged by the fact it was going to be a difficult job.

There was appointed by the Board of Trustees a committee consisting of four members of the Board of Trustees and three members of the House of Delegates of the American Medical Association, one of whom is Dr. John Cline, whom you all know, of course. Then having done that, what was the next step? It was all agreed that we would have to carry the message to the people, that this would be a grass roots problem of education. The battle would not be won in Washington only, nor by the influence that could be brought by people back home on the legislators in Washington.

The chairman of the Board of Trustees and the President of the American Medical Association called Dr. Cline and myself to consultation and he said, "Now, you fellows in California have been through a war, not once but twice. We realized that if you lost that war in California we would lose it nationally.

"Now, can you tell us who, in your opinion, can do this job for us on a national scale? Whom can we employ, and right away, to do this job for us?"

Without question we told him exactly what we knew had been accomplished in California by the firm of Whitaker and Baxter. And we recommended that they would do the things that would be best for American medicine, forgetting their own personal desires or ambitions and that they would do the job as best they possibly could, and that we felt that they would do just as good a job on a national scale as they had done locally.

This is exactly, ladies and gentlemen, the sequence of events and those who are delegates to the A.M.A. know that that is exactly what happened.

I want to tell you that that is why the firm of Whitaker and Baxter was employed by the American Medical Association, upon their record and experience in California. We felt that nationally it would not be any different except bigger, and we felt that the firm of Whitaker and Baxter was big enough to take on that assignment.

It is with pleasure that I present—not introduce, because you all know him very well—Clem Whitaker of the firm of Whitaker and Baxter, who is leading our educational fight in Chicago on a national basis. (Applause.)

[NOTE: Mr. Whitaker's address was published in the June issue of CALIFORNIA MEDICINE.]

SPEAKER ALESEN: Thank you, Whitaker and Baxter.

At this time the House of Delegates will recess to make way for the meeting of the administrative members of the California Physicians' Service. When that meeting is over, we shall reconvene to continue the remainder of this meeting.

. . . The meeting of the House of Delegates of the California Medical Association recessed at 8:15 o'clock p.m. to make way for the meeting of the administrative members of the California Physicians' Service. . . .

* * *

The meeting of the House of Delegates reconvened in the Ballroom of the Biltmore Hotel, Los Angeles, California, Sunday, May 8, 1949. The meeting was called to order at 10:20 p.m. by Vice-Speaker Charnock, who presided.

VICE-SPEAKER CHARNOCK: The last item of business this evening is new business, which includes the introduction of resolutions.

We will ask each member who introduces a resolution to come forward and give his name and county for the recorder, and to have the resolution in triplicate.

Are there any resolutions to present to the House of Delegates?

NEW RESOLUTIONS

No. 1. Regarding Reimbursement to Alternates to the A.M.A.

Introduced by T. J. LAUGHLIN, Los Angeles County

WHEREAS, It is of utmost importance that representatives of the various constituent state medical societies at the sessions of the House of Delegates of the American Medical Association be thoroughly conversant with the policies and functions of said House of Delegates, and

WHEREAS, Such knowledge can be obtained only through practical experience and personal contact by attendance at these sessions of the House of Delegates of the American Medical Association, and

WHEREAS, The office of Alternate to the House of Delegates of the American Medical Association is an honored and important office, placing a very real responsibility upon the one who holds it to be prepared to serve as a Delegate and to act in the best interests of Medicine, and

WHEREAS, It is not deemed just or equitable to expect an Alternate to be financially penalized by the expense of travel, etc., incurred in attending sessions of the House of Delegates of the American Medical Association, which sessions they should attend to meet the responsibility of their office; therefore be it

Resolved: By the House of Delegates of the California Medical Association, that Alternates from California to the House of Delegates of the American Medical Association shall be reimbursed by the California Medical Association for their expenses incurred in attendance at these meetings, beginning with June, 1949, meeting at Atlantic City, in the same manner as Delegates are reimbursed.

VICE-SPEAKER CHARNOCK: It will be referred to Reference Committee No. 3.

I see that Dr. Thienes has come in. He has asked permission to make an announcement. The Chair recognizes Dr. Clinton H. Thienes.

DR. THIENES: Mr. Speaker, ladies and gentlemen, I wish to announce that on Thursday night of this week at 7:00 o'clock there is to be a dinner, the annual dinner of the Medical Research Society of Southern California. I am speaking particularly, therefore, to physicians of this general community, but any of the members who happen to be remaining over Thursday are certainly invited, and urged to attend.

The Medical Research Society of Southern California was organized to assure the availability of animals for medical research. In other words, it is the organization for combatting the anti-vivisection movement. There is a national society and we have various regional societies. This is a very important movement.

You heard Dr. Murray this morning discuss the anti-vivisection bills and our own bill, which is the first step toward making the use of animals in laboratories a humane procedure.

We cannot expect to advance in medical research without the use of proper animals, and in California we have 16 per cent of the population of this part of the state who are opposed to the use of animals in medical research.

The poll for the country at large indicates about 5 per cent of the people are opposed to the use of animals in medical research. Here we have 16 per cent. I am confident that most of that 16 per cent could have their minds changed if there were a proper educational program, and some of the Medical Research Society of Southern California organized first by physicians, most of them just as I, working in laboratories—pharmacologists, bacteriologists, and so on.

We are now attempting to expand our membership and our activities. We have already included the dentists and the veterinarians. We have many nurses in our organization. We wish to have the wives of physicians and the wives of dentists and the wives of veterinarians.

We wish to have laboratory technicians and we wish to have members of the community at large who have no connection with medicine except that they wish their families protected.

Now, we wish as large a number as possible of the officials of the California Medical Association to be present, especially those from this area, at this meeting Thursday night. The place is the Linda Gales Dining Room at La Cienega and Beverly Boulevard in the Rexall Building. It is going to be necessary, of course, for those who come to the dinner to have reservations, and you can call my office at the University of Southern California, Richmond 4111, Station 369. Will you put that down in your notebooks and call tomorrow? It is important. Thank you.

Vice-Speaker Charnock: We will now resume the introduction of resolutions.

Dr. Benjamin Frees (Los Angeles County):

No. 2. Regarding Schedules of Insurance Carriers

Introduced by Benjamin Frees, Los Angeles County

Whereas, A rapid increase in coverage by voluntary sickness insurance programs is considered by the American Medical Association as the best answer to the demand for compulsory health insurance, and

Whereas, Many recognized insurance carriers today are insuring, on an indemnification basis, employee groups against the costs of sickness and hospitalization, and are handicapped in their efforts to expand this coverage without further cooperation from Doctors of Medicine as relates to agreements concerning fee schedules, and

Whereas, The Executive Committee and the Council of the Los Angeles County Medical Association have met a number of times with representatives of insurance carriers and insured employee groups, and have seriously studied the problem of fee schedules in relation to salable insurance programs that would cover an adequate portion of employed persons, looking forward to the approval of schedules that would be acceptable as full payment of fees for service, and

Whereas, Following this preliminary study it is the belief of the Council of the Los Angeles County Medical Association that this important subject be dealt with on a state, rather than a county level; therefore be it

Resolved: That the Council of the Los Angeles County Medical Association memorialize the House of Delegates of the California Medical Association to request the Council of the California Medical Association to consider this program of prime importance in meeting with positive action the issue of compulsory health insurance, and institute studies that will result in action without delay.

Vice-Speaker Charnock: It is referred to Reference Committee No. 3.

Dr. Sydney F. Thomas: Just a word of introduction first. This is merely a resolution concerning the procurement of military personnel and really an attempt to put on record what has already been started in a number of places, and which has been somewhat active in some of the counties.

No. 3. Regarding Doctors In Military Service

Introduced by Sydney F. Thomas, Alternate from Santa Clara County

Whereas, Help has been sought by the Office of Defense in procurement of medical personnel, and

Whereas, If proper procurement is done no maldistribution of medical talents would result; now therefore be it

Resolved: That the State (and County) Medical Society take the initiative rather than wait for government dictation in the matter of provision of medical personnel. That the medical service counsel be instructed to work out in liaison with the military authorities a truly reasonable estimate of the number necessary and be subjected to careful civilian scrutiny. That when the required number of doctors has been determined a survey be made at county society level of the availability of potential military medical men. That a roster be drawn up by a properly appointed committee in each county society of all the doctors in the order of their availability for military service with consideration similar to those which guided the Procurement and Assignment Boards being operative in determining the priority on this roster. That consideration be given to a system of rotation between military service and civilian service in the case of war so that the burden would not fall too exclusively on one particular group. That additional study be made of the utilization of civilian physicians on a part-time basis for staffing military hospitals in times of peace and war; now therefore be it further

Resolved: That the Council be empowered to set up a commission or committee on procurement of military personnel with the instruction that this committee work out carefully and prepare a plan for execution by the state and county medical society councils, as outlined above.

Vice-Speaker Charnock: Do we have any more resolutions?

Dr. William A. Sumner (San Francisco County): This resolution is introduced at the request of the Section on Neuropsychiatry.

No. 4. Regarding By-Law Amendment to Change the Name of a Scientific Section

Introduced by William A. Sumner, San Francisco County

Whereas, At the business meeting of the Section on Neuropsychiatry on April 12, 1948, it was formally passed and ordered that the Association be requested to change the name of the Section to the Section on Psychiatry and Neurology; now therefore be it

Resolved: That Chapter IX, Section 1(a) of the By-Laws be changed as provided in Chapter IX, Section 1(b) by substitution of the words "Section on Psychiatry and Neurology" for "Section on Neuropsychiatry."

Vice-Speaker Charnock: This resolution is referred to Reference Committee No. 3.

Dr. Robertson Ward.

Dr. Robertson Ward (San Francisco County): This resolution was introduced at the request of the San Francisco County Medical Society delegates.

No. 5. Regarding Support of A.M.A. Program

Introduced by Robertson Ward, San Francisco County

Whereas, There has been for several years a considerable growing threat to the voluntary method of rendering medical care to the people of the United States; and

Whereas, The people of the United States and the medical profession rightfully look to the American Medical Association for leadership in matters pertaining to medical care and the welfare of both the people and the profession; and

Whereas, The American Medical Association has, by action of its House of Delegates at the interim session, launched a campaign to educate the public concerning medical care; and

Whereas, The program involves the support of individual physicians both in spirit and financially, as to the assessment of $25.00 placed upon each member; now therefore be it

Resolved: That the House of Delegates of the California Medical Association heartily endorses the program of the American Medical Association and offers its support, both in spirit and in urging members to comply with the assessment; and be it further

Resolved: That a copy of this resolution be sent to the Board of Trustees of the American Medical Association, the Speaker of the House of Delegates and members of the House of Delegates of the American Medical Association, the chairman of its Coordinating Committee, and to all members of the United States Congress.

Vice-Speaker Charnock: This resolution is referred to Reference Committee No. 3.

Dr. James Raphael (Alameda County): This resolution is introduced at the request of the Alameda County delegates.

No. 6. Regarding Hospital Standardization

Introduced by James Raphael, Alameda County

Whereas, The 30-year trend in American medicine has seen the growth of numerous bodies without the framework of the American Medical Association, acting independently of the House of Delegates of the A.M.A., with the resulting division of its membership and the weakening of the policy-making power of the said House of Delegates; now therefore be it

Resolved: That the delegates from the California Medical Association to the American Medical Association be instructed to introduce a resolution to the effect that all extra-jurisdictional bodies now acting independently of the House of Delegates of the A.M.A. in matters of policy involving the membership as a whole be made responsible to the House of Delegates of the A.M.A., and be it further

Resolved: That the delegates from the California Medical Association to the A.M.A. be instructed to introduce a resolution to the effect that the House of Delegates of the A.M.A. appoint a committee made up of representatives of all minority and majority groups within its framework to study the problem of taking over the functions of hospital standardization and regulation now performed by extra-jurisdictional bodies; and be it further

Resolved: That the delegates from the California Medical Association to the A.M.A. be instructed to introduce a resolution to the effect that a plan of hospital standardization make provision for the local solution of local problems.

Vice-Speaker Charnock: This resolution is referred to Reference Committee No. 3.

Dr. Wesley S. Smith (San Diego County): I have several resolutions that our County Medical Society has asked to be introduced at this time.

No. 7. Regarding Public Relations

Introduced by Wesley S. Smith, San Diego County

Whereas, Each individual member of California Medical Association has paid the total sum of $310.00 into the treasury of said California Medical Association during the past four years as annual dues, to-wit: $100.00 in 1946, $100.00 in 1947, $60.00 in 1948, and $50.00 in 1949, and

Whereas, The individual members of said C.M.A. have been informed that a large percentage of said annual dues is used for "Public Relations" activities, and

Whereas, The members of C.M.A. residing south of the Tehachapi Mountains are of the opinion that little or no practical benefit has inured to organized medicine under the existing method of administering said Public Relations, and

Whereas, The members of C.M.A. residing south of the Tehachapi Mountains comprise more than 60 per cent of the entire membership of C.M.A., and the Southern Counties are now in dire need of a more coordinated and effective program of local Public Relations, and

Whereas, It has come to the attention of the members of C.M.A. residing south of the Tehachapi Mountains that various other professional groups (for example, Southern California State Dental Society), are beginning to organize and carry on more and more Public Relations activities on a "grass roots" or local level rather than on a state level, and

Whereas, The members of the C.M.A. residing south of the Tehachapi Mountains firmly believe that Public Relations activities carried on at a "grass roots" or local level would prove more effective and less expensive than those carried on at a state level; now therefore be it

Resolved: That the Public Relations Committee of C.M.A. be instructed to review carefully the existing method of administering the Public Relations activities of C.M.A., to investigate thoroughly the present expenditure of C.M.A. funds for Public Relations activities, and to determine the effectiveness of the present method of administering the Public Relations activities of C.M.A. in relation to its cost. Be it further

Resolved: That said Public Relations Committee of C.M.A. be instructed to investigate the possibility of allocating C.M.A. funds to component medical societies to be used for Public Relations activities on a "grass roots" or local level, with special emphasis being placed on the determination of whether Public Relations activities handled on a "grass roots" or local level would not prove more effective and less expensive than the existing method of administering the Public Relations activities of C.M.A. Be it further

Resolved: That said Public Relations Committee of C.M.A. be instructed to investigate the possibility of allocation of C.M.A. funds to employ a firm of Public Relations Counsellors in the southern part of California, in order to provide the Southern Counties with better Public Relations on a local level by Public Relations Counsellors who know the local problems facing the Southern Counties at this time. Be it further

Resolved: That the Public Relations Committee of C.M.A. be instructed to study the Public Relations programs of the various other professional groups, such as Southern California Dental Society, to determine the effectiveness of said programs and the possibility of adopting a similar program for C.M.A.

No. 8. Regarding Field Representative

Introduced by Wesley S. Smith, San Diego County

Whereas, At the 1948 session of the House of Delegates of California Medical Association, a resolution was adopted requesting C.M.A. to effect closer and more adequate contact between itself and the Southern Counties, and

Whereas, C.M.A. thereafter stationed a "field representative" in Los Angeles, and

Whereas, During the past year it has become increasingly apparent that the numerous duties of said "field representative," in Sacramento and elsewhere, make it impossible for one person to be available when necessary at this office in Los Angeles, and

Whereas, Although the members of C.M.A. living south of the Tehachapi Mountains comprise more than 60 per cent of the total membership of C.M.A., the Southern Counties are still without a C.M.A. representative most of the time; now therefore be it

Resolved: That the Council and officers of C.M.A. be instructed to carry out the resolution adopted at the 1948 session of the House of Delegates of C.M.A., and that the Council and officers of C.M.A. take all steps necessary to establish a more adequate branch office in the Southern Counties in which representatives of C.M.A. will at all times be available for consultation and assistance.

No. 9. Regarding California Caravan

Introduced by Wesley S. Smith, San Diego County

Whereas, The members of C.M.A. have been informed that a large amount of the funds of C.M.A. is being used to put on the radio program known as "California Caravan," and

Whereas, Said radio program is generally concerned with the publicity for California Physicians' Service, and

Whereas, California Physicians' Service is at present a solvent corporation and well able to take care of and pay for its own public relations activities; now therefore be it

Resolved: That the Public Relations Committee of C.M.A. be instructed to study carefully the phases of organized medicine publicized by the radio program "California Caravan," that said Public Relations Committee of C.M.A. be instructed to review the use of C.M.A. funds to publicize California Physicians' Service, and that California Physicians' Service be instructed to pay for its own public relations activities.

Vice-Speaker Charnock: Those resolutions will be referred to Committee No. 3.

Dr. William C. Black (San Diego County):

No. 10. Regarding Social Security

Introduced by William C. Black, San Diego County

Whereas, Extension of "Social Security" to the self-employed of the United States has been advocated and will probably be considered and acted upon by the 81st Congress, and

Whereas, Such extension would include physicians and surgeons, and

Whereas, Provision for the exigencies of old age is an individual matter which should be left to the decision of self-employed individuals on a strictly voluntary basis, and

Whereas, So-called "Social Security" is in effect a socialistic compulsory tax scheme which cannot and has not provided proper, satisfactory, or acceptable insurance protection in this country or in other countries, and

Whereas, "Society Security" is actually one of the numerous entering wedges for the development of the Welfare State aimed at the destruction of individual freedom, individual initiative and responsibility, and the voluntary society which is the primary reason for the ascendancy of the United States of America, and

Whereas, The private insurance companies of the nation offer a large variety of flexible insurance plans designed to meet the great variety of desires for insurance protection by the people of this country; now therefore be it

Resolved: That the House of Delegates and the Council of the California Medical Association unanimously disapprove of the extension of so-called "Social Security" to physicians and surgeons and that the Secretary of the Association be instructed to send copies of this resolution to

1. Members of the appropriate Senate and House Committees, and
2. The Board of Trustees of the A.M.A.;

and be it further

Resolved: That the delegates to the A.M.A. be instructed to introduce a similar resolution at their next meeting.

VICE-SPEAKER CHARNOCK: Referred to Reference Committee No. 3.

The Chair recognizes Dr. Breitman next.

DR. H. B. BREITMAN (Los Angeles County): This was originally one resolution that was split in two, and was unanimously approved by the Council of the General Practice Section of Los Angeles County.

No. 11. Regarding General Practice Sections In Hospitals

Introduced by H. B. BREITMAN, Los Angeles County

WHEREAS, The rapid and constant increase of medical knowledge the past twenty years has necessarily resulted in greater specialization with its greater demand on hospital facilities, leaving very little room for the general practitioner, and

WHEREAS, This trend is destroying the effectiveness of the general practitioner in treating the public and is undermining the prestige he has always had, and

WHEREAS, The high cost of medical care is in a large part due to this inability of the general practitioner to hospitalize and treat his patient, still the major part of the public, and this contributes greatly to the demand for socialized medicine, and

WHEREAS, These inequities have received official recognition as evident by the resolution passed unanimously by the A.M.A. House of Delegates on December 10, 1946, and later by the C.M.A. in May, 1947, encouraging hospitals to set up general practitioner services, and

WHEREAS, This resolution has either been ignored or ineffectually carried out by many large hospitals throughout the country; now therefore be it

Resolved: That the delegates of the C.M.A. reaffirm its resolution urging all approved hospitals having specialized sections in their staff setup to have a general practice section having the same standing as other sections with the same powers and privileges.

No. 12. Regarding General Practice Section

Introduced by H. B. BREITMAN, Los Angeles County

WHEREAS, The rapid and constant increase of medical knowledge the past twenty years has necessarily resulted in greater specialization with its greater demand on hospital facilities, leaving very little room for the general practitioner, and

WHEREAS, This trend is destroying the effectiveness of the general practitioner in treating the public and is undermining the prestige he has always had, and

WHEREAS, The high cost of medical care is in a large part due to this inability of the general practitioner to hospitalize and treat his patient, still the major part of the public, and this contributes greatly to the demand for socialized medicine, and

WHEREAS, These inequities have received official recognition as evident by the resolution passed unanimously by the A.M.A. House of Delegates on December 10, 1946, and later by the C.M.A. in May, 1947, encouraging hospitals to set up general practitioner services, and

WHEREAS, This resolution has either been ignored or ineffectually carried out by many large hospitals throughout the country; therefore be it

Resolved: That the delegates of the C.M.A. instruct the delegates from California to the A.M.A. House of Delegates to introduce a similar resolution at their next meeting making it mandatory for such hospitals, with continued approval contingent on such action, and that a copy of this resolution be sent to the American College of Surgeons with the request that that body voice approval of this resolution in its manual of Hospital Regulations.

VICE-SPEAKER CHARNOCK: These resolutions are referred to Reference Committee No. 3.

Dr. MacDonald.

DR. FRANK A. MACDONALD (Sacramento County):

No. 13. Regarding Staff Memberships

Introduced by FRANK A. MACDONALD, Sacramento County

WHEREAS, Hospital Districts were legalized in 1946 by the State Legislature under the Health and Safety Code, and

WHEREAS, District Hospitals constructed under the terms of this act were placed under the control of a board of directors, chiefly laymen, elected by the voters of the district, and

WHEREAS, High professional standards must be maintained in these hospitals to protect the health of the community and promote the welfare of the public; now therefore be it

Resolved: That this House of Delegates goes on record as being unalterably opposed to the appointment of practitioners other than fully qualified Doctors of Medicine to the professional staffs of these hospitals; and be it further

Resolved: That the Council of the California Medical Association be directed to assist by every legal means in carrying out the above resolution.

VICE-SPEAKER CHARNOCK: This resolution is referred to Reference Committee No. 3.

Dr. Davis is next.

DR. BURT L. DAVIS (Santa Clara County): This resolution was endorsed by the Council of the Santa Clara County Medical Society, and by the membership as a whole.

No. 14. Regarding the Standards and Qualifications of Doctors

Introduced by BURT L. DAVIS, Santa Clara County

WHEREAS, The future of the private practice of medicine rests with the present generation of physicians, and

Whereas, The California Medical Association has steadfastly supported and advocated the personal type of practice as we now know it and as it may be altered by the extension of voluntary health insurance plans; and

Whereas, Forces have been, and are, at work both here and in other countries which disrupt the solidarity of the medical profession by emphasis upon the differences in the personal preferences of doctors as to the type of their individual practices; and

Whereas, We have seen in Great Britain an example of the way in which this technique has split the forces of organized medicine, so that the state was enabled ultimately to exploit all of the groups, whether specialist or general practitioner, and

Whereas, The tendency has arisen for governmental agencies, insurance companies, and other organizations dealing with matters pertaining to health and medicine to make distinctions not only between general practitioners and specialists but also between specialists qualified by long experience and specialists qualified by board membership, and in addition to make academic distinctions among the various specialties, upon the basis of groupings among medical men themselves, and

Whereas, All physicians and surgeons in California licensed by the Board of Medical Examiners hold equivalent licenses and are equally permitted to practice medicine and surgery, and

Whereas, There are already laws enacted and in force which have been so interpreted that the work authorized under these acts may be performed only by holders of certificates granted by Medical Specialty groups whose legal authority does not supersede that of the Board of Medical Examiners, and

Whereas, These certificates were originally intended only as bases for standards among the members of the profession and not for a legal classification of doctors, and

Whereas, The California Medical Association has endorsed, and continues to endorse, the granting of Specialist Certificates for the purpose for which they were intended, but not for legal differentiation between physicians, and

Whereas, The California Medical Association is an organization of physicians and surgeons holding equal licenses to practice granted by the State of California, and

Whereas, The California Medical Association represents its members equally regardless of training or type of practice; now therefore be it

Resolved: That this House of Delegates of the California Medical Association deplores this tendency to create fissures, widen gaps, and accentuate differences between groups of doctors: and be it further

Resolved: That this House of Delegates instructs the Committee of Public Policy and Legislation of the California Medical Association to use its good offices and those of the society as a whole to impress upon legislative bodies, public health officials, and administrators of these various laws and acts the urgent need for amendments to the existing laws in order to correct the inequities now present not only in these laws, but in their administration and in addition to guard against these evils in the future; and be it further

Resolved: That the California Medical Association shall bring these matters to the attention of each component county medical society in order that the administration of these laws may be closely scrutinized at the local level; and be it further

Resolved: That this House of Delegates instructs the officers and members of the California Medical Association to advocate equal treatment of physicians by insurance companies, governmental agencies and others so that duly licensed doctors of medicine are considered equally in the eyes of the law.

Vice-Speaker Charnock: This resolution is referred to Reference Committee No. 3.

Dr. Wilbur Bailey (Los Angeles County): On Page 26 of the Annual is a report on the codification of medical ethics, of which I am chairman, and here are two short resolutions which have to do with that committee report.

No. 15. Regarding Fictitious Names

Introduced by Wilbur Bailey, Los Angeles County

Whereas, The recent decision of the Attorney General of California reemphasizes the fact that it is illegal for corporations or fictitious institutions to engage in the practice of medicine in California, and

Whereas, We note increasing numbers of so-called "Foundations," "Institutes," "Diagnostic Associations," "Tumor Centers," etc., not a few of which are operated by laymen or persons with dubious qualifications; now therefore be it

Resolved: That for the information and protection of the public, members or groups of members of the California Medical Association shall whenever possible avoid practicing under fictitious names and shall attempt to use only their own name or names on office doors, letterheads and other places visible to the public. In the case of bona fide established medical groups with regional or geographical names, the names of the founding or senior medical member shall whenever possible appear in conjunction with the title of the group, and, of course, on letterheads, etc., the name or names of all medical associates. And be it further

Resolved: That this resolution shall be brought to the attention of all component county medical societies with the request that they give it due notice in their publications and announcements.

No. 16. Regarding Non-Resident Members of The American Medical Association

Introduced by Wilbur Bailey, Los Angeles County

Whereas, The By-Laws of the American Medical Association at the present time permit a physician to maintain membership in one county medical association and in the American Medical Association, although he may leave and practice in an entirely different section of the country, and

Whereas, A physician under such circumstances has no responsibility to the local county medical society, and in turn cannot be held responsible by that society for his actions; now therefore be it

Resolved: That our delegation to the American Medical Association be instructed to present a resolution and to secure appropriate By-Law changes so that a physician who has moved to a new community must affiliate with the county medical society in which he practices within eight months or lose his membership in the American Medical Association.

Dr. Bailey: So much for the Committee on Codification of Medical Ethics. This third one is an idea of my own which may net us good will from the public. We ask a good deal of them. Perhaps we can do something for them.

No. 17. Regarding Ambulances

Introduced by Wilbur Bailey, Los Angeles County

Whereas, Recently a private ambulance transporting a chronic invalid relied upon its siren to gain the right of way through a red light and was crushed by a truck, thus killing its three occupants, and

Whereas, Most drivers will yield to vehicles equipped with red lights but in some cases because of cab noises or deaf drivers no amount of siren screech will gain the right of way, and

Whereas, there are practically no medical emergencies requiring great haste in private ambulance transportation, but on the contrary patients can be actually harmed by being jounced across town through a series of hairbreadth escapes, and

Whereas, recent newspaper comment has made it abundantly clear that the public bitterly resents having these vehicles race through the streets while the "peasants hop for cover," and

Whereas, Ambulance owners through their organization, the California Ambulance Association, have expressed the wish that ambulances equipped with red lights but not sirens because the sirens double the wear and tear on equipment as well as the cost of insurance. (For competitive reasons this organization wants such action to be statewide), and

Whereas, The desire to abolish these hideous noises is unanimous except for a handful of doctors with a flair for the dramatic and those ambulance drivers who seem to enjoy this modern counterpart of the old western custom of shooting up the town; now therefore be it

Resolved: That to save the lives of our patients and to protect the health of our citizenry, the California Medical Association goes on record as wishing to cooperate with the California Ambulance Association in its desire to remove ambulance sirens. And be it further

Resolved: That efforts be made to amend the State Vehicle Code so that the example of New York and other mature cities may be followed where low-voiced sirens on public emergency vehicles are sounded only at intersections and when necessary.

Vice-Speaker Charnock: These will be referred to Reference Committee No. 3.

Are there any others?

R. J. Lafe Ludwig (Los Angeles): This must sound like something of an anticlimax.

No. 18. Regarding Education or Indoctrination of Interns and Medical Students

Introduced by J. Lafe Ludwig, Los Angeles County

Whereas, The present-day medical student, intern, and resident have in many instances received their premedical training in institutions where the subjects of economics, sociology, and political economy have been taught by teachers with a pronounced bias toward collectivism, and have been assailed from many quarters by all manner of propaganda favoring the welfare state, and

Whereas, There are at this time and have been for some time past organizations actively engaged in aggressive campaigns to misinform, mislead and confuse these medical students, interns, and residents, to the end that governmental control of our profession may ultimately emerge by default, and

Whereas, We in the medical profession have thus far taken no active steps to inform the coming generation of practitioners concerning the fundamentals of economics in general as they apply more specifically to the practice of the healing arts; now therefore be it

Resolved: That the President of the California Medical Association be instructed to appoint a special committee of five whose duty it shall be to cause to be prepared and to be circulated among all medical students, interns, and medical residents of the State of California as well as among all of the membership of the California Medical Association, at short intervals, an instructive and explanatory brochure discussing the fundamentals of economics as they apply to the practice of medicine. To this end, the committee is instructed to employ the services of a trained economist who firmly believes in the American system of private enterprise and is skilled in developing and presenting the thesis of economic freedom.

Vice-Speaker Charnock: The resolution by J. Lafe Ludwig of Los Angeles County will be referred to Reference Committee No. 3.

Dr. Bender of San Francisco.

Dr. William L. Bender (San Francisco County): I want to put the same resolution to the House of Delegates that I presented to the Administrative Members of C.P.S., relative to a coordinating committee to aid in the function of C.P.S.

I shall gladly forego re-reading it, if the chairman and the House of Delegates will agree.

Vice-Speaker Charnock: We will agree that it can be handed in as you read it before the administrative body. Thank you, Dr. Bender.

No. 19. Regarding California Physicians' Service Coordinating Committee

Introduced by William L. Bender, San Francisco County

Whereas, California Physicians' Service has grown to size and scope of a multi-million dollar corporation, and

Whereas, The successful administration of such a corporation requires the maximum ability, time and effort that may be reasonably expected from the Board of Trustees of C.P.S., and

Whereas, The matters of policy, strategy and the correlation of C.P.S. activities to those of the medical profession as a whole have become an additional burden of great magnitude for the Board of Trustees, and

Whereas, The responsibility for conducting the actual business of C.P.S. and also for studying and deciding matters of policy and strategy are now an unjust imposition on the Board of Trustees of C.P.S.; now therefore be it

Resolved: That the Board of Trustees limit its activities exclusively to the efficient operation of the corporation, and be it further

Resolved: That all matters of policy, strategy and economic or political import which affect the operation of C.P.S., such as the number of beneficiary members acceptable, the income ceiling, the stability of the unit, etc., shall be studied by a Coordinating Committee to be created solely for this purpose, and be it further

Resolved: That the Coordinating Committee make recommendations on all such subjects to the Board of Trustees, who in fulfilling their obligation to the members of the C.M.A. should abide by them until disapproved by the Administrative Members, and be it further

Resolved: That the Coordinating Committee shall make such recommendations as promptly as practicable to the Administrative Members who shall retain the right of final approval or rejection, and be it further

Resolved: That the Coordinating Committee shall be composed of the President of the California Medical Association who shall act as chairman, chairman of the Council of C.M.A., President of the Board of Trustees of C.P.S., chairman of the C.M.A. Legislative Committee, and two members of the House of Delegates, who shall hold no other C.P.S. office, to be nominated from the floor of, and elected by the House of Delegates for a term of two years (excepting that one of the initial members shall be elected for a one year term), to serve no more than two consecutive terms, and be it further

Resolved: That the Coordinating Committee shall be expected to consult with official C.M.A. legal and public relations counsel on all problems confronting the committee, and shall be empowered to engage additional help in the field of statistics and economics as necessary, and be it further

Resolved: That on the adoption of this resolution by the House of Delegates, the Board of Trustees of C.P.S. shall be directed to refer to the Coordinating Committee all such matters of policy or strategy as defined herein.

Vice-Speaker Charnock: This last resolution is referred to Reference Committee No. 3.

Is there any other new business? If there is no other new business, we will ask the chairmen of the Reference Committees to state the times and places their committees will meet.

(The committee chairmen gave the information.)

Vice-Speaker Charnock: Is there any new business? If not, a motion to adjourn is in order.

. . . It was moved and seconded that the meeting be adjourned. The motion was put to a vote and was unanimously carried. . . .

. . . The first meeting of the House of Delegates adjourned at 11:00 o'clock p.m., to reconvene Tuesday, May 10, 1949, at 4:30 p.m. . . .

* * *

HOUSE OF DELEGATES
MAY 10, 1949

The second meeting of the House of Delegates of the California Medical Association convened in the Music Room of the Biltmore Hotel, Los Angeles, California, Tuesday, May 10, 1949. The Speaker, Dr. Lewis A. Alesen, of Los Angeles, California, called the meeting to order at 4:30 p.m., and presided.

Speaker Alesen: Will the meeting please come to order.

The Chair recognizes Dr. Carl Hadley of San Bernardino, chairman of the Credentials Committee, for a report. Dr. Hadley.

Dr. Hadley: We have enough for a quorum, Mr. Speaker.

Speaker Alesen: Mr. Secretary, shall we proceed with the roll call?

Secretary Garland: Yes, sir.

. . . . The roll was called by the Secretary, and a quorum was reported present and acting. . . .

Speaker Alesen: The Secretary will make the announcement concerning the location of our Convention for 1950.

Secretary Garland: Mr. Speaker and members of the House: The Council has not chosen next year's meeting place yet. There will be an attempt to do so tomorrow morning at an early hour, and we will notify all of you as soon as possible.

Speaker Alesen: Now, Mr. Hunton informs me that after the dinner recess we shall reconvene in the Ballroom. Of course, it is up to the House of Delegates to determine what time, but your speaker would most humbly urge that it would be as soon as possible. We have a lot of work to do tonight, so I suggest we recess at 6:00 o'clock and meet again at 7:15.

At this time the order of business is the election of officers.

ELECTION OF OFFICERS

The Chair will entertain a nomination for the office of President-Elect.

Dr. J. Norman O'Neill (Los Angeles): Mr. Chairman.

Speaker Alesen: Dr. O'Neill.

Dr. O'Neill: Mr. Speaker, members of the House, I really don't know what to say. I feel like a member of the CIO nominating President Roosevelt. (Laughter.)

The candidate for President-Elect is a man whom I have known for a great many years. He is well-known to all of you. He has been a member of the Council of the Los Angeles County Medical Association for about ten years.

He was then elevated to the Council of the State Society. He has done some very excellent work as a delegate to the American Medical Association.

He has put in many trying and arduous hours as a trustee of the California Physicians' Service, and in that one department alone has rendered invaluable service in looking after you doctors in a great many ways of which you probably are not entirely cognizant or aware.

During the war he carried a great deal of responsibility, working in the disaster committee which was functioning throughout the various hospitals, and it took a great deal of time.

I have talked to people, members of the California Medical Association, all the way from San Francisco to San Diego. I have interviewed past-presidents of the California Medical Association. I have talked to potential candidates for that office, and I have talked to the doctors out in the neighborhoods and various communities, and I haven't heard one dissenting voice for the man that we are going to nominate.

He is not only a Native Son—that may please some of you, although he doesn't wear it on his sleeve, I am happy to say—he is a graduate of Stanford Medical School, and he knows the problems of the general practitioner.

He knows the problems of the industrial surgeon, for he has spent many years on the Industrial Complaint Committee, and he is largely responsible for what increases we have been able to obtain in our fee schedule for industrial work.

He has some very fine Turf Club patients. I have tried to get them away from him but I haven't been able to because they love him, and rightly so.

It gives me great pleasure to place in nomination the name of Dr. Donald Cass for President-Elect of the California Medical Association. (Applause.)

Speaker Alesen: The name of Dr. Donald Cass has been placed in nomination for President-Elect. Are there further nominations?

Dr. E. T. Remmen: I move the nominations be closed and the Secretary be instructed to cast a unanimous ballot for Dr. Cass.

A Member: I second that motion.

Speaker Alesen: Is there any discussion? All those in favor of the motion signify by saying "aye."

. . . The motion was put to a vote and was unanimously carried. . . .

Speaker Alesen: The Chair notes the motion is unanimous. Dr. Donald Cass has been nominated as your President-Elect, and the Secretary will cast the ballot.

Secretary Garland: The ballot is cast. (Applause.)

Vice-Speaker Charnock: The next order of business is the selection of a Speaker. Dr. Alesen, incumbent.

President Askey.

President Askey: Mr. Speaker, members of the House of Delegates: Since the institution of the office of the Speaker of the House of Delegates, there have been five members of your Association that have held that office. It was Dr. Edward Pallette first, Dr. Roblee, Dr. Lowell Goin, the man who is speaking, that you honored very highly, and the present Speaker of your House.

I think that because of the work which that office entails, it needs a man who has demonstrated his ability to give you the service that you deserve. You need a man who will spend the onerous time that is necessary in that office.

It needs a man who has demonstrated that he has those abilities.

Without making any further speech, I hereby place in nomination the name of Dr. Lewis Alesen for Speaker of this House of Delegates. (Applause.)

A Member: Mr. Chairman, I would like to second that nomination and move that the nominations be closed and that the Secretary be asked to cast a unanimous ballot for Dr. Alesen.

Vice-Speaker Charnock: Is there a second to that motion?

A Member: I second it.

Vice-Speaker Charnock: It has been moved and seconded that the nominations be closed, and that the Secretary cast a unanimous ballot for Dr. Alesen. All those that are in favor will signify by saying "aye."

. . . The motion was put to a vote and was unanimously carried. . . .

Vice-Speaker Charnock: I note, Mr. Secretary, that that is unanimous and the Secretary is instructed to cast a unanimous ballot.

Secretary Garland: The ballot is cast.

Vice-Speaker Charnock: Dr. Alesen has been elected. (Applause.)

Speaker Alesen: Thank you.

The next order of business is the selection of a Vice-Speaker. Nominations are in order.

Dr. John Ruddock: Mr. Speaker and members of the House of Delegates: I take great pleasure at this time in placing in nomination your present incumbent, Donald Charnock, and I will let his many years of service and his record speak for itself.

Speaker Alesen: The name of Dr. Charnock has been placed in nomination.

Dr. J. Sampson of Santa Monica.

Dr. Sampson: It is my pleasure to second the nomination of Donald Charnock as Vice-Speaker of the House of Delegates.

Speaker Alesen: Dr. Clifford Loos.

Dr. Loos: Mr. Speaker, members of the House of Delegates: In placing in nomination the candidate I have in mind, I think it is only right that some of the delegates who are a little distant from Los Angeles should understand a situation that exists in this county of ours.

We have in Los Angeles a two-party system in the province of medicine and that runs along just as tranquilly and beautifully as a multiparty does in Venezuela and other places I could mention. (Laughter.)

It has been in the minds of some of us that a one-party system is the best system for a medical society. I am one of those naive people who engage in childish pursuits to have this happen. I haven't been too successful.

In order to bring about harmony in our midst—you have all heard of this—we have had many love feasts and they were delightful things to attend. But the resolutions we adopted at those love feasts didn't last long enough for the food in our stomachs to be digested.

Some of us tried the precarious feat of straddling the fence. Some of us have had to have quite a bit of perineal repair. (Laughter.)

We decided to try to do something about it this year. According to custom, a meeting was called, an organization meeting of the Los Angeles delegates, to organize, get a chairman and a steering committee. This meeting was well attended and the committee of nine for the steering committee was nominated, but there were three nominees too many, and it was decided upon motion by Dr. Remmen that the committee be extended to 12.

It was a fair committee. It met several times and it attempted to be as fair as it could be. I was there, and I know. I was a member of the committee. Among the various names that the committee presented as possible candidates for office of the C.M.A., some were unopposed. Your newly-elected President-Elect was unopposed. Your newly elected Speaker was unopposed.

Then came the position of Vice-Speaker. There were four names presented to the steering committee and we decided to be fair and not make the choice there by the 12 of us but to present the four names to the caucus that was to be called. The caucus was called. The four names were presented. One man withdrew. We balloted on the three remaining. Of the three remaining, one man received more votes than the other two.

Now, the sad part of all political campaigns is that whenever there is a contest by ballot, there has to be a human sacrifice. That I hate, but the gods must be appeased and that seems to be the rule of running for office; there is always a human sacrifice.

So, the man who was selected by this caucus was the man that I am privileged to introduced to you tonight.

This was, as I consider, a duty placed upon me. not one that I chose, and not one that indicates in any way how I might vote, because we all have our free vote. But I was instructed to report to you the results of that caucus of the Los Angeles delegates and alternates. There were 90 there, or a few under or over 90. Some of the alternates voted also. So, at this meeting it was decided to present the name of a man who was past-president of the Board of Medical Examiners, who has been for two years Secretary of the Los Angeles County Medical Association. He has fulfilled his duties well. He is well-liked, and I believe honestly if this man were to run for office on the county level, he would be unequalled. Two years ago I couldn't have said that. Two years ago I voted against him myself.

In these two years I think he has proven his ability. He has spent much time in the office as secretary. He is editor of our Bulletin, and he is a man that I believe is well-qualified for the position that he was named for.

But, before I reveal his name—you are all wondering what in the world this can be I imagine (laughter)—before I reveal this great secret I want to tell you this man I esteem as I esteem Don Charnock. Don Charnock is one of my best friends and has done a personal favor I will never forget.

Dick Bullis is the man I am going to name, and Dick Bullis is also a friend, and I esteem both of these men so highly I know that the one defeated will take defeat with a smile and will not make it a partisan matter and get his friends about him and start a revolution.

I know both of these men are not that kind and I know that if either one of these men is elected to office, you are not going to be disappointed.

The difficulty with our high offices is there are not enough of them for the good men we have to go around, and I think we ought to pass a resolution, or change the constitution so we have, say, 100 offices on the state level so we can give everybody a position, because there are so many worthy men.

But, ladies and gentlemen, it is my pleasure to present to you for your consideration for the office of Vice-Speaker of the House of Delegates of the C.M.A., Dr. Richard Bullis.

Dick, will you stand up so they can take a look at you? (Applause.)

Speaker Alesen: Are there any further nominations?

Dr. Magoon (Santa Clara): Mr. Speaker, as you have heard, Dr. Bullis has filled many positions in the field of medicine, both within and without the C.M.A., capably and with distinction.

I am sure he will fill the office of Vice-Speaker in the same manner.

It is a privilege and a real pleasure to second the nomination of Dr. Richard Bullis of Los Angeles. (Applause.)

Speaker Alesen: Are there any further nominations? If not, the nominations are declared closed and we shall proceed with the ballot.

Will the tellers, T. E. Reynolds of Alameda, Carl L. Mulfinger of Los Angeles, Robert O. Pearman of San Luis Obispo, and R. J. Prentiss of San Diego, proceed to distribute the ballots on the office of Vice-Speaker. The candidates are Richard Bullis and Donald Charnock.

DISTRICT COUNCILORS

The next order of business is the election of District Councilors, three-year term. The Third District, Harry E. Henderson, Santa Barbara, term expiring.

Mr. Secretary, have you the nominees for this post from the Third District?

Secretary Garland: Mr. Speaker, the delegates from the Third District have nominated Dr. Harry E. Henderson to succeed himself.

Speaker Alesen: Are there any further nominations for the post of Councilor for the Third District? If not, how will you proceed?

Several Members: Voice.

Speaker Alesen: Those in favor of electing Dr. Harry E. Hendson of Santa Barbara to succeed himself as District Councilor, please signify by saying "aye."

. . . The motion was put to a vote and was unanimously carried. . . .

Speaker Alesen: Mr. Secretary, please note and cast the ballot on it unanimously.

Secretary Garland: The ballot is cast.

Speaker Alesen: Dr. Henderson is elected.

The Sixth District, Dr. Edwin L. Bruck of San Francisco, term expiring.

Secretary Garland: Mr. Speaker, members of the House, the Sixth District delegates nominate Dr. Laurence Montgomery to fill the vacancy left by Dr. Bruck.

Speaker Alesen: Dr. M. Laurence Montgomery has been nominated by the delegates of the Sixth District. Are there any other nominations at this time? If not, how will you vote?

Several Members: By voice.

Speaker Alesen: Those in favor of electing Dr. Montgomery as Councilor for the Sixth District, signify by saying "aye."

. . . The motion was put to a vote and was unanimously carried. . . .

Speaker Alesen: So ordered. Mr. Secretary, will you cast a unanimous ballot.

Secretary Garland: The ballot is cast, Mr. Speaker.

Speaker Alesen: Ninth District, John W. Green, Vallejo, term expiring.

Secretary Garland: Mr. Speaker, we have a unanimous nomination from the delegates of that district for the name of Dr. John W. Green of Vallejo to succeed himself.

Speaker Alesen: Dr. John W. Green of Vallejo has been nominated to succeed himself as Councilor from the Ninth District.

Are there other nominations from the floor?

A Member: Mr. Chairman, further nominations are not in order. The House has the privilege of accepting or rejecting the nomination of the District.

Speaker Alesen: Your point is well taken. The Chair stands corrected.

All those in favor of electing Dr. John W. Green will signify by saying "aye."

. . . The motion was put to a vote and was unanimously carried. . . .

Speaker Alesen: It is unanimous. Mr. Secretary, will you please cast the ballot.

Secretary Garland: The ballot is cast, Mr. Speaker.

Speaker Alesen: The next order of business is the election of Councilors-at-Large, three year term.

COUNCILORS-AT-LARGE

Speaker Alesen: Eugene F. Hoffman, Los Angeles, term expiring.

Dr. Richard Bullis: Mr. Chairman, members of the House of Delegates, it gives me pleasure to come forward to place in nomination the man who has been my boss in Los Angeles County since the last election.

I would like to say that you couldn't get a more competent, hard-working man for the position of Councilor-at-Large in this District to succeed Dr. Hoffman than Dr. Benjamin Frees. (Applause.)

Speaker Alesen: The name of Dr. Benjamin Frees has been placed in nomination to succeed Dr. Eugene Hoffman. Are there other nominations?

Dr. Hoffman: Mr. Speaker, I move the nominations be closed.

Speaker Alesen: Are there other nominations? Is there a second to Dr. Hoffman's motion that the nominations be closed?

A Member: I second the motion.

Speaker Alesen: Those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: It is so ordered. Mr. Secretary, the vote is unanimous. Will you cast the ballot, please.

Secretary Garland: The ballot is cast, Mr. Speaker.

Speaker Alesen: Now, nominations are in order for the term of Councilor-at-Large to fill the vacancy left by Dr. C. V. Thompson of Lodi, term expiring.

Dr. Homer Woolsey: Mr. Speaker, I take great pleasure in placing in nomination the name of Claude V. Thompson to succeed himself for this office of Councilor-at-Large.

Speaker Alesen: The name of Dr. Thompson has been placed in nomination to succeed himself as Councilor-at-Large. Are there other nominations? If not, what is your action?

A Member: Mr. Chairman, I move the nominations be closed and the Secretary be instructed to cast a unanimous ballot.

Speaker Alesen: All those in favor signify by saying "aye."

. . . The motion was put to a vote and was unanimously carried. . . .

Speaker Alesen: It is so ordered. It is unanimous. Mr. Secretary, will you please cast the ballot.

Secretary Garland: The ballot is cast.

Speaker Alesen: Dr. Thompson has been elected to succeed himself.

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

Speaker Alesen: The next order of business is Delegates to the American Medical Association for 1950 and 1951. The term will expire on December 31, 1951.

The term of Robertson Ward of San Francisco is expiring.

Dr. Kilgore.

Dr. Kilgore: Mr. Speaker, I move the nomination of Dr. Ward to succeed himself.

Speaker Alesen: Are there other nominations? The name of Dr. Ward has been placed in nomination to succeed himself. How will you act?

Several Members: Voice.

Speaker Alesen: All those in favor please signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: It is so ordered. Mr. Secretary, will you cast the ballot.

Secretary Garland: Mr. Speaker, the ballot is cast.

Speaker Alesen: The next office is that of Sam J. McClendon, term expiring.

Dr. Ball (Santa Ana): I place in nomination the name of Dr. Sam J. McClendon to succeed himself.

Speaker Alesen: The name of Dr. Sam J. McClendon has been placed in nomination to succeed himself.

Are there other nominations? If not, how will you vote?

Several Members: Voice.

Speaker Alesen: All those in favor of nominating Dr. Sam J. McClendon to succeed himself signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: There being no opposition, Mr. Secretary, will you cast a unanimous vote.

Secretary Garland: The ballot is cast, Mr. Speaker.

Speaker Alesen: Dr. Sam J. McClendon has been elected.

Next is Dr. Lowell S. Goin, Los Angeles, term expiring.

Dr. J. Lafe Ludwig of Los Angeles is recognized by the Chair.

Dr. Ludwig: Mr. Speaker, members of the House of Delegates, I would like to place in nomination the name of a man who is now serving his second term in the Council of the Los Angeles County Medical Association, has served two terms on the Council of the California Medical Association, has acted as alternate to Dr. Goin for the past two years, has done an admirable job and one I am certain you could not improve on as Councilor to the American Medical Association.

It is my privilege and pleasure to nominate at this time Dr. Eugene Hoffman.

Speaker Alesen: The name of Dr. Eugene Hoffman has been placed in nomination.

Dr. Blackman: I would like to second the name of Dr. Hoffman as delegate to the American Medical Association.

Speaker Alesen: Are there further nominations? If not, all those in favor of the selection of Dr. Eugene Hoffman to succeed Dr. Lowell S. Goin please signify by saying "aye."

. . . The motion was put to a vote and was unanimously carried. . . .

Speaker Alesen: It is unanimous. Will you cast the ballot, Mr. Secretary.

Secretary Garland: The ballot is cast.

Speaker Alesen: Dr. Hoffman is elected.

The term of John W. Green is expiring. Nominations are in order.

A Member: I would like to nominate Dr. Green to succeed himself as delegate to the A.M.A.

Speaker Alesen: Dr. John W. Green has been nominated to succeed himself.

A Member: Mr. Speaker, I should like to second that nomination.

Speaker Alesen: Are there additional nominations?

A Member: I move the nominations be closed and the Secretary be instructed to cast a unanimous ballot.

Speaker Alesen: Is there a second?

A Member: Second.

Speaker Alesen: It has been moved and seconded that the nominations be closed and the Secretary be instructed to cast a unanimous ballot. All those in favor signify by saying "aye."

. . . The motion was put to a vote and was unanimously carried. . .

Speaker Alesen: Dr. Green has been elected unanimously. Mr. Secretary, will you cast the ballot.

Secretary Garland: Mr. Speaker, the ballot is cast.

Speaker Alesen: Next is an additional delegate to A.M.A., no incumbent at this time.

Dr. Donald Cass of Los Angeles.

Dr. Cass: I would like to nominate Lewis Alesen for the additional delegate.

Vice-Speaker Charnock: The name of Dr. Lewis Alesen has been placed in nomination as delegate to the A.M.A.

A Member: I would like to second that nomination with gusto. (Applause.)

Vice-Speaker Charnock: Are there any other nominations for this position?

A Member: I move the nominations be closed and the Secretary be instructed to cast a unanimous ballot for Dr. Alesen.

Vice-Speaker Charnock: It has been moved and seconded that the nominations be closed and the Secretary cast a unanimous ballot for Dr. Lewis Alesen. All those in favor signify by saying "aye."

. . . The motion was put to a vote and was unanimously carried. . . .

Vice-Speaker Charnock: Mr. Secretary, it is unanimous, and will you cast the ballot.

Secretary Garland: Mr. Vice-Speaker, the ballot is cast with gusto. (Laughter.) (Applause.)

Speaker Alesen: Thank you.

ALTERNATES TO AMERICAN MEDICAL ASSOCIATION

Speaker Alesen: The next business for your attention is that of the selection of alternates to the A.M.A. First is the term of Dr. Anthony B. Diepenbrock of San Francisco, alternate to Dr. Robertson Ward. Nominations, please.

Dr. H. Brodie Stephens: I should like to nominate Dr. Anthony B. Diepenbrock to succeed himself as alternate to Dr. Robertson Ward as delegate to the American Medical Association.

Speaker Alesen: The name of Dr. Diepenbrock has been placed in nomination to succeed himself.

A Member: I move the nominations be closed.

Speaker Alesen: Is there a second?

Several Members: Second.

Speaker Alesen: It has been moved and seconded that the nominations be closed. Mr. Secretary, will you cast the ballot for Dr. Diepenbrock?

Secretary Garland: The ballot is cast.

Speaker Alesen: Dr. Diepenbrock is elected.

Next is the term of Dr. Bon O. Adams of Riverside, alternate to Sam J. McClendon.

Dr. A. E. Moore (San Diego): I would like to place in nomination the name of Walter S. Cherry as alternate.

Speaker Alesen: The name of Dr. Walter Cherry has been placed in nomination to succeed Dr. Bon O. Adams. Are there any other nominations?

A Member: Mr. Speaker, I move the nominations be closed and the Secretary be instructed to cast a unanimous ballot.

Speaker Alesen: Is there a second?

Several Members: Second.

Speaker Alesen: It has been moved and seconded the nominations be closed and the Secretary be instructed to cast the ballot. All those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: Hearing no dissenting voices, Mr. Secretary, will you cast the ballot.

Secretary Garland: The ballot is cast, Mr. Speaker.

Speaker Alesen: Next is the alternate to Dr. Eugene F. Hoffman.

Dr. Duke Mahannah, Los Angeles County.

Dr. Duke Mahannah: Mr. Speaker, members of the House of Delegates, it is my pleasure to nominate a general practitioner who I think would make a good representative to the American Medical Association. This man has many qualifications which we reviewed in the caucus of our delegation.

Without reviewing those qualifications, I wish to announce that he was the choice of our delegation and I place in nomination the name of Dr. Elmer J. Ball. (Applause.)

Speaker Alesen: Dr. Ball has been nominated.

The Chair recognizes Dr. Frank Crandall of Los Angeles.

Dr. Crandall: I would like to second the nomination and also move nominations be closed.

Speaker Alesen: Just a minute, Doctor. Let's give them a chance.

Dr. John Martin (San Diego County): I would like to place the name of Frederic S. Ewens as alternate for this position.

Speaker Alesen: The name of Dr. Frederic Ewens has been placed in nomination for the position of alternate to Dr. Hoffman. Are there other nominations for this position?

A Member: I move the nominations be closed.

A Member: I second the motion.

Speaker Alesen: It has been moved and seconded the nominations be closed. All those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: Are the tellers finished with their job yet, or shall we appoint new ones?

I will appoint Dr. Carl Benninghoven of San Mateo County, Dr. Samuel Randall of Santa Cruz, Dr. Hollis Carey of Butte-Glenn County, and Dr. Alfred B. Wilcox of Santa Barbara County.

You are voting on the position of alternate to the American Medical Association. Elmer J. Ball and Frederic Ewens are the nominees.

Dr. Ward: Could I ask the privilege of having the two candidates stand so we can have a look at them?

Speaker Alesen: Yes.

Dr. Ball, will you please stand? (Applause.)

Dr. Ewens, will you please stand? (Applause.) Thank you.

Next is Dr. Frank A. MacDonald of Sacramento, alternate to John W. Green. Nominations are in order for the position.

A Member: I would like to place in nomination the name of Frank MacDonald.

Speaker Alesen: The name of Dr. Frank MacDonald has been placed in nomination.

Dr. Woolsey: I second that and move the nominations be closed, and the Secretary cast the ballot on it.

Speaker Alesen: Dr. Woolsey, may we wait just one second to see if there be any other nominations.

If not, the motion has been made that the nominations be closed and the Secretary be instructed to cast the ballot. Are you ready for the question?

Several Members: Question.

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: Mr. Secretary, it is unanimous. Will you cast the ballot.

Secretary Garland: Mr. Speaker, the ballot is cast.

Speaker Alesen: He has been elected to succeed himself.

Now, the post of alternate to additional delegate to A.M.A. Dr. Nippert of Los Angeles.

Dr. Edward Nippert: Mr. Speaker, members of the House of Delegates, I wish I had the eloquence of one of the previous speakers and the silver-tongued oratory of my predecessor there, Dr. Loos, which I do not have; but I have the same determination and the privilege of presenting to you a name well known to you all; a man who is the founder of, I think, one of the greatest organization adjuncts of the State Society, which is the Public Health League; a man who has been battling for years for your profession and your pocketbooks and has succeeded up to now, and we hope will succeed in years to come.

For 15 years he was on the Legislative Committee of the C.M.A. He was president and secretary of the Los Angeles County Society, and he made a valuable reputation for himself. He is a conscientious worker and a man who produced results. He is also a trustee to Los Angeles County Medical Association, a member of the Physicians' Aid, and, most of all, and better yet, he is editor of the Annals of Western Medicine and Surgery.

So, with all these qualifications, gentlemen, you can't help but believe, as I do, that this man is qualified as an additional alternate to the American Medical Association, and I give you the name of Dr. Edmund T. Remmen. (Applause.)

Speaker Alesen: The name of Dr. Edmund T. Remmen of Los Angeles has been placed in nomination for the additional delegate to the American Medical Association.

A Member: Mr. Speaker, it gives me pleasure to second the nomination.

Dr. Wesley Smith (San Diego): Mr. Speaker, inasmuch as this is a new position going to Southern California, we feel it entirely in order that District 1, composed of San Diego, Imperial, San Bernardino, Riverside and Orange counties be given an opportunity to place in nomination the name of an also very highly respected man.

This is a position which has never been filled. Los Angeles has already elected the delegate to the American Medical Association. The alternate's position, we feel, should properly go to one of the outlying districts.

The man we have selected to be the alternate for this new position is a man most of you know; a man who also has done outstanding things for medicine.

First of all, I might go back and tell you he—someone mentioned one of their candidates graduated from Stanford—this man graduated from the University of California in 1922. He settled in one of the beautiful districts of Southern California where he grows oranges and has since remained there serving in many, many responsible positions. Among them, of course, have been some terms on the Council of the Orange County Medical Association. Later he was its president.

He has served as a delegate to this House of Delegates for years and more recently and at present is a Councilor of our California Medical Association.

In addition to these qualifications he has an excellent background. He is the former chairman of the Industrial Section of the California Medical Association. He is the president of the Western Association of Physicians and Surgeons. It gives me a great deal of pleasure to put in nomination the name of John Ball, present Councilor, District No. 1. (Applause.)

Speaker Alesen: The name of Dr. John Ball has been placed in nomination for this position.

Dr. Remmen.

Dr. Remmen: Mr. Chairman, members of the House, I allowed my name to be placed in nomination for the position of alternate delegate as a part of the harmony move. It is not an office which I seek. In fact, I don't seek any office at all. If I can carry a little water and do some work, I am most happy to do that.

I certainly do not wish to do anything which might create disharmony by depriving one of our smaller counties of what it considers proper representation on our delegation to the American Medical Association.

For that reason, Mr. Speaker, I beg to withdraw my name and to ask that the election of Dr. John Ball be made unanimous. (Applause.)

Speaker Alesen: Dr. Remmen has withdrawn his name from nomination.

Are there other nominations?

If not, how will you act?

Several Members: Voice.

Speaker Alesen: All those in favor of Dr. John

Ball as an additional delegate to the American Medical Association, signify by saying "aye."

. . . The motion was put to a vote and was unanimously carried. . . .

Speaker Alesen: Please note, Mr. Secretary, the vote is unanimous. Will you cast the ballot.

Secretary Garland: The ballot is cast.

Speaker Alesen: Mr. Secretary, do you have announcements to make on the election?

Secretary Garland: Mr. Speaker and members, in the ballot for position of Vice-Speaker, there was a vote of 220—Charnock 124, Bullis 96. Dr. Charnock is elected, Mr. Speaker. (Applause.)

Speaker Alesen: Are there any additional announcements, Mr. Secretary?

Secretary Garland: No additional announcements, Mr. Speaker.

Speaker Alesen: How about members of the Standing Committees?

Secretary Garland: That will be at a later time.

Speaker Alesen: There are a number of items we would like to get off before the evening recess.

Dr. Justin J. Stein, president of the Veterans' Association of Los Angeles County, desires to introduce a resolution at this time out of order. The reason is that this is a non-controversial matter. This resolution covers something Dr. Stein believes is of great importance to the House of Delegates.

Will you permit Dr. Stein to be heard?

If there are no objections, the Chair moves he be heard. Dr. Stein.

Dr. Stein: Mr. Speaker and members of the House of Delegates: As Dr. Alesen has said, this is not a controversial issue. It has been passed on by the Steering Committee of the Los Angeles delegation and I believe it is an extremely important resolution. The resolution is as follows:

Resolution

Whereas, The procurement and assignment of physicians is one of the most important tasks with which the California Medical Association is confronted at the present time, and

Whereas, It has been estimated by the Armed Forces that there will be a shortage of 1,600 physicians by the end of July 1949, and that by the end of 1949 there will be a shortage of approximately 2,200 physicians, and

Whereas, The voluntary response by physicians educated at government expense or deferred from the draft in order to complete their education has been very poor, and

Whereas, Legislation of a discriminatory nature against physicians has been recommended by many lay individuals and organizations, and

Whereas, Medical matters of a military nature will become increasingly more numerous in the future; now therefore be it

Resolved: That the President of the California Medical Association be instructed at this session to appoint a permanent Committee on Military Affairs, whose duties shall be to:

1. Establish liaison between the Medical Advisory Committee to the Secretary of Defense and the American Medical Association on all matters pertaining to the procurement and assignment of physicians.
2. Assist in the formulation of any legislation, if it should be required, to obtain physicians for the Armed Forces during peace time.
3. Help establish proper quota of physicians for the Armed Forces during both peace and war time in the State of California.
4. Establish liaison between the various County Medical Societies of the state and keep them informed on all problems pertaining to the procurement and assignment of physicians.
5. To work with the Disaster Control Committee regarding the coordination of civilian disaster plans with those of the military during major disasters, such as fire, earthquake, atomic warfare, etc.

Speaker Alesen: This resolution will be taken by the Secretary and presented to you after the report of the Resolutions Committee No. 3 at the evening session.

Mr. Secretary, have you a report on the election of office for alternate delegate to the American Medical Association?

Secretary Garland: Mr. Speaker, the poll is Ewens 112, Ball 103. Dr. Ewens is elected as alternate. (Applause.)

Speaker Alesen: At this time the Chair will recognize Dr. Sam J. McClendon of San Diego, chairman of the Committee on the Constitution and By-Laws.

Dr. McClendon.

Dr. McClendon: Mr. Speaker, and members of the House: I am a great believer in the dictum of Henry Ward Beecher who said, "No souls were ever saved after the first 20 minutes."

I am not going to read this document at this time, but I would like to point out that originally 16 members of the California Medical Association were appointed as a committee to revise the Constitution and By-Laws.

In 1948, at your last session of the House, that particular document was referred to a committee of five. We have spent many hours and several days' total time in going over the Constitution and By-Laws for the purpose of revision. I will state that we have now completed our work of many arduous hours and are going to present for action for next year a complete revision of the Constitution and By-Laws. We hope this will be the only one necessary for the next ten to twenty years.

The major changes we have initiated have resulted from the change in the type of association that we have had.

The scope and magnitude of business affairs of this organization has grown tremendously during the past ten years and we feel more time should be given, particularly to business administration and resolutions, and that type of thing. So, the new Constitution will provide for two meetings of the House of Delegates, a regional meeting and an interim meeting, and also provide for certain type of work and resolutions which can be introduced at one session and acted upon at the other.

Also, the committee felt the financial affairs of the Association require a more business-like handling. Therefore, the new Constitution will propose a more complete budgeting system and provide that expenditures beyond the budgets shall require a three-fourths vote of the Council.

The committee feels that the dual system of District Councilors and Councilors-at-Large is no longer in the best interests of the Association and is recommending that the state be redivided into 12 Councilor Districts with one Councilor from each, and with four officials given full Council membership.

Many additional modifications of the existing Constitution and By-Laws are proposed, including reorganization and strengthening of Standing Committees, clarification of membership qualifications and classifications, strengthening the procedure for referendum votes and other similar matters.

Also, I might state in this connection that we have in the New Constitution and By-Laws provided for a realignment of delegates to this House. Instead of having one delegate for each 50 members, under the proposed Constitution we would have one for each 100 members or fraction thereof.

In other words, your committee has felt the House was becoming too large and unwieldy for prompt and efficient action.

We have provided for a more democratic procedure in the election of delegates and have protected the right of each Councilor District to select its own Councilors.

I will not go into further detail at this time concerning the Constitution and By-Laws from the standpoint of details, because you will have this published at least twice in CALIFORNIA MEDICINE. You will have an ample opportunity to either oppose or approve what we have done.

I would like, however, at this time, to pay particular commendation to my committee. They have done an arduous job. a very thankless and onerous job. Dr. Richard O. Bullis, Dr. Leslie Magoon, Dr. Carl Mulfinger, and Dr. Robertson Ward have worked many hours on this.

I would like to give particular credit to our Executive Secretary, Mr. Hunton, who sat with us in every meeting and who has had voluminous work; and also Mr. Hassard, who has gone over this sentence by sentence to make sure there was no legal complication.

Mr. Speaker, I present the revision of the Constitution and By-Laws, which will lie on the table for one year.

SPEAKER ALESEN: Is this in the final form in which your committee wishes to present it?

DR. MCCLENDON: It is.

SPEAKER ALESEN: The Chair accepts this and it will lie on the table for one year.

At this time I suggest we have a recess. Please try to be back by 7:30. We will reconvene in the Ballroom at 7:30.

Ladies and gentlemen, this meeting is recessed.

. . . The meeting of the House of Delegates recessed at 6:15 p.m. to reconvene at 7:30 o'clock p.m. in the Ballroom. . . .

* * *

RECONVENTION OF HOUSE OF DELEGATES

The meeting of the House of Delegates reconvened in the Ballroom of the Biltmore Hotel, Los Angeles, California, Tuesday, May 10, 1949. The meeting was called to order at 7:30 p.m. by Speaker Lewis A. Alesen, who presided.

SPEAKER ALESEN: Will the House please come to order. We have a particularly important duty for the President to perform. Will he please approach now.

Mr. Secretary, will you make some announcements, please?

SECRETARY GARLAND: Mr. Speaker and members of the House, these are the nominations for the Standing Committees made by the Council, and subject to your ratification now:

Committee on Associated Societies and Technical Groups, J. Norman O'Neill, Los Angeles; Committee on Health and Public Instructions, George M. Uhl, Los Angeles; Committee on History and Obituaries, E. T. Remmen, Los Angeles; Committee on Hospitals, Dispensaries and Clinics, John C. Sharp, Monterey; Committee on Industrial Practice, Jerome W. Shilling, Los Angeles; Committee on Medical Defense, H. Clifford Loos, Los Angeles; Committee on Medical Economics, Arthur A. Kirchner, Los Angeles; Committee on Medical Education and Medical Institutions, Francis Scott Smyth of San Francisco; Committee on Membership and Organization, Verne G. Ghormley, Fresno; Committee on Postgraduate Activities, Charles A. Broaddus, San Joaquin; Committee on Publications, Keene O. Haldeman, San Francisco; Committee on Public Policy and Legislation, Peter Blong, Los Angeles; Advisory Committee, J. Lafe Ludwig, Los Angeles, to replace Peter Blong; Committee on Scientific Work, Clayton Mote; Physicians' Benevolence Committee, Axcel E. Anderson, Fresno, chairman.

SPEAKER ALESEN: What are your wishes for these committee appointments?

A MEMBER: I move they be accepted.

ANOTHER MEMBER: Second.

SPEAKER ALESEN: It has been moved and seconded that they be accepted. Is there any discussion?

All those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

SPEAKER ALESEN: So ordered.

At this time the Chair recognizes Dr. Askey, who has an important duty to perform for the California Medical Association. Dr. Askey.

Dr. Askey: Mr. Speaker, ladies and gentlemen of the House: In medicine there are a great many of our members who through the years have brought honor to our profession. And over the United States in the last few years it has been the custom to give to those people who have practiced for 50 years some little token of our appreciation of their success and the honor they have brought to their profession.

California Medical Association has a number of members who have practiced and been members of this Association for 50 years. We wish at this time to present to those members the pins and buttons which are emblematic of our esteem for our fellow practitioners of medicine.

From Alameda County we have the following Doctors of Medicine: C. M. Holmes Brazelton, Clark J. Burnham, Sr., E. Spence DePuy, Manuel M. Enos, Edward N. Ewer, A. Marion Field, Eve L. Harris, Murrey L. Johnson, Henry J. Kohlmoos, T. C. McCleave, Sr., Louise Oldenbourg, Kirby B. Smith, W. Barclay Stephens, Frank D. Walsh.

Dr. Enos, I guess you are the only one from Alameda County. Will you wait right here, please.

Los Angeles County: Lula Talbott Ellis, William Humes Roberts.

Sacramento County: George W. Dufficy.

San Francisco County: Herbert C. Moffitt, Wallace I. Terry.

San Mateo County: George W. Sevenman.

Dr. Enos, you alone are here to receive in person the award which we have for you in behalf of your 50 years of service as a member of our profession.

It is our honor to present you this emblem of this space of time you have honored our profession. I hereby grant this in the name of the California Medical Association, Dr. Enos. (Standing applause.)

Dr. Enos: Thank you very much.

President Askey: Thank you, Dr. Enos.

The other pins and buttons for persons whose names that I have read will be granted and given.

Now, there is one more honor which I, as your President, have, and it is a double honor because I was instructed by the Council of your Medical Association to present this to a member of your House.

There is a gentleman who is almost a has-been. Within a few hours he will be a has-been. I refer to the present chairman of the Council of the California Medical Association. This man, it has been my privilege to watch for several years of arduous work.

He has been a slave driver. He has been one who would not allow things to go by the board.

Your work had to be done and he saw that you did it. However, he is a slave driver that we all love. He is a man that we wish to honor tonight.

In behalf of the Council of the California Medical Association, I am asked to present to its outgoing chairman, Dr. Edwin Bruck, a token of the esteem in which we hold the man who has been chairman of our Council in the last few years.

I will ask Dr. Bruck to come here and accept this and to show you what we have given. Dr. Bruck. (Standing applause.)

Dr. Bruck: This is the miniature. This was a gavel when I became chairman of the Council and it has worn down to this size. (Laughter.)

Thank you, Dr. Askey and members of the Council.

The fact is that I have come to the time when I think I have done all the good I can do, and probably have stayed too long, and I feel that I should move out and make space for younger, quicker, faster, and better men; and that is the reason I have refused to go on. Everything I have done in the past has been something for the good of the California Medical Association as I saw it. I thank you. (Applause.)

Speaker Alesen: We have five minutes now before the California Physicians' Service takes over. Can Committee No. 1 get any part of its report in, Dr. Royston?

REPORT OF REFERENCE COMMITTEE No. 1

Dr. Eric A. Royston, Chairman: Mr. Speaker, members of the House. Before presenting this report, I wish to acknowledge the valuable help rendered this committee by the other members of the committee, Dr. Ivan C. Heron of San Francisco and Dr. Burt Davis of Palo Alto.

Altogether too frequently members of the committee will excuse themselves and leave the work to somebody else, but these men took hold right from the beginning and stayed with it until it was through.

Your committee has reviewed the reports of the General Officers, the Councilors, the President of the Trustees of the C.M.A., the Legal Department, and of the Editor of California Medicine. We were very much impressed with the integrity and the earnestness with which the various officers of the California Medical Association have conducted their work during the past year. When medicine in general is so much under fire today from our Federal and State governments, it is most encouraging to be so definitely assured that the leaders of American Medicine are not going to depart from their Hippocratic oath.

These reports have been printed in the Pre-Convention Bulletin, copies of which have been distributed to all members of the House.

Your committee recommends the approval of these reports. Mr. Speaker, I move the adoption of this section of the report.

Speaker Alesen: Is there a second to this?

A Member: I second it.

Speaker Alesen: All those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: So ordered.

Dr. Royston: Section 2: The report of the Council as presented in the Pre-Convention Bulletin has been carefully reviewed by your committee, together with the supplementary report on the Proposed Program of the California Medical Association for the Improvement of Medical Care. Your committee recommends the adoption of this report with its supplement. Mr. Speaker, I move the adoption of this section of the report.

Speaker Alesen: Is there a second?

A Member: Second.

Speaker Alesen: All those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: It is so ordered.

Dr. Royston: Section 3: Your committee has carefully reviewed the reports of the following committees: Executive Committee, Committee on Associated Societies and Technical Groups, Auditing Committee, Committee on Health and Public Instruction, Committee on History and Obituaries, Committee on Hospitals, Dispensaries, and Clinics, Committee on Medical Economics, Committee on Medical Education and Medical Institutions, Committee on Organization and Membership, Committee on Publications, Committee on Scientific Work, Cancer Commission, Advisory Planning Committee, C.M.A. Blood Bank Commission, Committee on Public Relations, Committee on Industrial Health, Committee on Rural Medical Service, Committee on Codification of Medical Ethics, and the Physicians' Benevolence Committee. Your committee recommends the approval of these reports. Mr. Speaker, I move the adoption of this section of the report.

Speaker Alesen: Is there a second?

A Member: Second.

Speaker Alesen: Those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: It is so ordered.

Dr. Royston: Section 4: Your committee has reviewed the report of the Editorial Board and highly commends Dr. Dwight Wilbur for the excellent work which he has done as chairman of this Board. Your committee recommends the adoption of this report but submits the following suggestion: That the members of the Editorial Board be supplemented by representation from the section on General Practice. Your committee recommends the approval of this section of its report.

Mr. Speaker, I move the adoption of this section of the report.

Speaker Alesen: Dr. Royston, this is merely a recommendation, is it not? It does not provide for a specific appointment at this time?

Dr. Royston: No.

Speaker Alesen: Is there a second?

A Member: Second.

Speaker Alesen: All those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Dr. Royston: Section 5: Your committee has reviewed the report of the Committee on Industrial Practice as published in the Pre-Convention Bulletin and recommends its adoption. Your committee feels, however, that a supplementary report on the progress of negotiations regarding the fee schedule would be welcomed by the membership of the California Medical Association. Mr. Speaker, I move the adoption of this section of the report.

Speaker Alesen: Is there a second?

A Member: Second.

Speaker Alesen: All those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: It is so ordered.

Dr. Royston: Section 6: It appears to your committee that Dr. Cullen Ward Irish and his committee for Study of Problems of Alcoholism in making their exhaustive study of this subject have contributed not only to the activities of the California Medical Association but have added a noble monograph to adorn the shelves of our medical and public libraries.

In addition to the seven recommendations which were submitted in printed form in the Pre-Convention Bulletin, the committee has also submitted 67 masterfully written pages on the subject of alcoholism which will probably become a standard reference for the future generations on this ancient and most important subject. We presume that this report will be printed in full in California Medicine. We suggest that this report be made available to county medical and public libraries.

Your committee heartily recommends the adoption of this section of the report. Mr. Speaker, I move the adoption of this section of the report.

A Member: I second the motion.

Speaker Alesen: All those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: It is so ordered.

Dr. Royston: Section 7: Your committee has reviewed the report of the Committee on Crippled Children's Act as submitted by Dr. Frederic Ewens and wishes to commend it on the breadth and scope of its exploration of this very important subject.

Your committee recommends approval of this report in principle and suggests that the following changes be inserted in the paragraph referring to Section 253 of the Crippled Children's Act so that the words, "expert diagnosis" found in line four will be eliminated and the words "proper diagnosis and treatment" be used in their place.

In the paragraph referring to Section 254 and 255 of the Act, your committee suggests that the phrase, "either wholly or partly unable," be changed to read, "the test for eligibility for benefits should be based on a realistic appraisal of the child's need as determined by his physician or a medical advisory committee."

Your committee feels that time is of the essence in pursuing these recommendations and is aware that the State Act is dependent on the Federal Act in order to obtain federal tax moneys. Therefore, your committee suggests that the Council institute immediate steps to carry into effect these changes as far as possible in the present Legislature and also instruct the delegates to the American Medical Association to implement a national program to change the Federal Act in conformance with the principles in the report of this committee.

Your committee recommends the approval of this section of its report. Mr. Speaker, I move the adoption of this section of the report.

A MEMBER: I second it.

SPEAKER ALESEN: Is there any discussion? If not, all those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

SPEAKER ALESEN: It is so ordered.

DR. ROYSTON: Section 8: Your committee feels that Dr. John Ruddock and his committee have done an excellent job in preparing their report on the committee on Postgraduate Activities. They have undoubtedly given many hours of study and thought to this most important subject. In addition to their printed report which appeared in the Pre-Convention Bulletin, they presented a supplementary report in two parts. The first part consisted of a report on the policies adopted by the Committee on Postgraduate Activities. The second consisted of a report of proposals for the future work of the committee.

Your committee recommends the adoption of this most excellent report and supplement with the following suggestions:

Part 1, paragraph 3 of the supplementary report be changed to read as follows: "The Committee on Postgraduate Activities will arrange postgraduate seminars at selected centers within the state which are easily accessible to most of the 4,000 non-metropolitan members. These seminars will consist of didactic lectures and/or clinical demonstrations in conjunction with the local county medical societies. Necessary expenses of the speakers or instructors and other miscellaneous costs will be absorbed by the Association."

In part 2, paragraph 2 of the supplement, it be changed to read as follows: "So that the director might be free for the field, as soon as practicable, the possibilities should be explored of employing an office assistant to the Director of Postgraduate Activities on a full time basis, and that adequate office space be made available immediately adjacent to the California Medical Association offices in San Francisco or in Los Angeles if circumstances warrant."

Paragraph 3 be changed to read: "That an Advisory Committee be appointed to meet with the Standing Committee at least once yearly," etc.

Paragraph 3 (c) be changed to read: "A surgeon, an internist, a pediatrician, an obstetrician, a general practitioner, and such other representatives as may be deemed advisable, to be selected at large."

Paragraph 4 to be deleted.

Paragraph 5 be changed to read: "That the California Medical Association continue its membership in the National Postgraduate organization of the A.M.A., and that a representative of the Postgraduate Activities Committee, preferably the Director, be selected to attend their yearly meeting, and such other meetings as are considered necessary and advisable by the committee."

Paragraph 6 be changed to read: "Insofar as deemed advisable the Postgraduate Committee cause to be published in CALIFORNIA MEDICINE, all postgraduate programs and opportunities fostered by the universities and other organizations available within the state."

Your committee recommends the approval of this section of its report. Mr. Speaker, I move the adoption of this section of the report.

SPEAKER ALESEN: Is there a second?

A MEMBER: Second.

SPEAKER ALESEN: Is there a discussion?

DR. ROBERTSON WARD: So far, has the chairman of the Postgraduate Committee approved the changes made in this program?

SPEAKER ALESEN: Dr. Ruddock, do you wish to answer that question?

DR. RUDDOCK: I have.

SPEAKER ALESEN: Is the answer satisfactory, Dr. Ward?

DR. WARD: Yes.

SPEAKER ALESEN: Is there any further discussion? If not, all those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

SPEAKER ALESEN: It is so ordered.

DR. ROYSTON: Mr. Speaker, I move the adoption of the Report of Reference Committee No. 1 as a whole.

SPEAKER ALESEN: It has been moved and seconded that the Report of Reference Committee No. 1 as a whole be adopted. Is there any discussion? If not, all those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

SPEAKER ALESEN: It is so ordered

Thank you, Dr. Royston, and your committee for an excellent job well done. (Applause.)

The Chair now recognizes President Askey and recommends that he continue the job he almost finished before.

PRESIDENT ASKEY: It has been brought to my attention that one of our 50-year men just entered the room. We would like to honor him with a presentation of his 50-year badge. Actually it is 54 years.

This is Dr. Andrew Henderson of Sacramento County. (Standing applause.)

Dr. Henderson, it is with honor that I present you this pin.

Dr. Henderson: Thank you. I wish to thank you for this recognition of long membership in this Association.

I rather feel that this body now has a fight on its hands quite as important as anything that has been done in the medical fraternity since the time 54 or 55 years ago when I joined the Association. That, of course, is the fight against socialized medicine.

About two weeks ago there appeared in Sacramento a gentleman who is a more than able graduate of the University of California, and his remarks were to the effect that 88 per cent of the people of the United States would be benefited by compulsory insurance. How he got that 88 per cent I can't even tell. So I would like to have some of the University of California men tell us where they got that 88 per cent. (Laughter.)

He said the United States was the only major country in the world that did not have socialized medicine, and I have no doubt he thought that he might have added that the rest of the countries had gone to the bow-wows and we might just as well go with them. (Laughter.)

Two or three weeks ago an article for socialistic medicine referred to a gentleman who had just been presented, as we were tonight, with a 50-year recognition of membership as a physician and surgeon of New York City. This gentleman in his remarks made the comment that in the next 50 years people would devote attention to preventive medicine as opposed to the cure of the failure of medicine. Now that is very nice, but I think I heard that same remark made some 50 years ago in Sacramento. I heard it in New York, I heard it in London, Paris, Berlin, and Vienna. It is true that preventive medicine was taken up at that time and the work done has resulted in the virtual elimination or great reduction of bubonic plague, typhoid fever, malaria, diphtheria—all those diseases, some of them which caused the death of millions of people.

There is no question but that our fight now, or your fight now, is the prevention of a socialistic type of medicine. (Standing applause.)

Speaker Alesen: At this time the California Medical Association House of Delegates recesses and the California Physicians' Service meeting is turned over to Dr. Lowell Goin.

. . . The meeting of the House of Delegates recessed at 8:15 p.m. to reconvene after the meeting of the California Physicians' Service. . . .

* * *

RECONVENTION

The meeting of the House of Delegates reconvened in the Ballroom of the Biltmore Hotel, Los Angeles, California, Tuesday, May 10, 1949. The meeting was called to order at 10:10 p.m. by Vice-Speaker Charnock, who presided.

Vice-Speaker Charnock: The next order of business is the Report of the Reference Committee No. 3, Dr. Jacobs, chairman.

REPORT OF REFERENCE COMMITTEE No. 3

Dr. Francis E. Jacobs, Chairman: Your Reference Committee No. 3, Dr. H. Clifford Loos, Dr. M. Laurence Montgomery and I, have met and considered all testimony presented regarding the By-Law amendment and the 18 other resolutions that were presented to the House of Delegates. There were no constitutional amendments submitted or held over from last year.

We have consulted with your President, Dr. Vincent Askey; with President-Elect Dr. Stanley Kneeshaw; with officers of the C.M.A.; with Council members of C.M.A.; with members of the Board of Trustees of C.P.S.; with representatives of various C.M.A. committees; with legal counsel; and with our Executive Secretary, Mr. John Hunton.

We have used the best witnesses available in considering the various resolutions. Your committee has used its best judgment in giving proper consideration not only to the county societies and individuals who proposed the resolutions but also the actual substance of the resolutions themselves. No audible voice was left unheard.

The problems which we have considered cover parts of the entire field of social, economic and administrative medicine. The field is broad and it is possible that we may have erred in judgment in the consideration of certain aspects of the resolutions. We have done the best job we could for you.

Reference Committee No. 3 respectfully submits the following report:

Resolution No. 1: This is a resolution embodying the thesis that alternates be allowed the same expenses for attendance at sessions at House of Delegates of the A.M.A. as the delegates. The committee and a majority of the witnesses felt that this is a progressive move which will be of great value to C.M.A. for years to come.

The committee recommends the adoption of this resolution.

Vice-Speaker Charnock: Do I hear a second to the motion?

The question is on the adoption of this section of the report.

A Member: I second the motion.

Vice-Speaker Charnock: All those in favor will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: This section is adopted.

Dr. Jacobs: Resolution No. 2: A resolution embodying the thesis that C.M.A. on the state level can best negotiate with insurance companies regarding fee schedules for medical services.

The committee recommends adoption of this resolution.

A Member: I second the motion.

Vice-Speaker Charnock: It has been moved and seconded that this resolution be adopted. The question is on the adoption of this resolution.

Those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Dr. Jacobs: Resolution No. 3: The intent of this resolution calls for a screening of all physician personnel for military service. The executive committee of C.M.A. already has met with representatives of the Army and Navy and is working along the lines suggested in the resolution. The Council of the A.M.A., through one of its committees, also is working on this thesis with the Surgeon General of the Army and Navy. The intent of the resolution is already being accomplished. The committee feels therefore that this resolution is unnecessary.

The committee recommends the rejection of this resolution.

Vice-Speaker Charnock: Do I hear a second to that?

A Member: Second.

Vice-Speaker Charnock: The question is on the adoption of this section of the report which will reject the resolution. Those that are in favor will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Dr. Jacobs: Resolution No. 4: This resolution embodies an amendment to the By-Laws by bringing up to date certain nomenclature in the By-Laws of the Constitution of the C.M.A. The intent is to change the words from "Neuropsychiatry" to "Section on Psychiatry and Neurology."

The committee recommends the adoption of this resolution.

A Member: I second the motion.

Vice-Speaker Charnock: It has been moved and seconded we adopt this section of the report.

All those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No. 5: The intent of this resolution is an affirmation by the C.M.A. of the new vigorous policy of the A.M.A. in combatting compulsion.

The committee recommends the adoption of this resolution.

Vice-Speaker Charnock: Do I hear a second?

A Member: I second the motion.

Vice-Speaker Charnock: It has been moved and seconded to adopt this section of the report. All those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No. 6: The committee has spent a great deal of time and study with witnesses and legal counsel concerning this particular resolution. Under ordinary circumstances it would favorably report the resolution to the House but it believes that because of the uncertainty of conditions, the timing is inappropriate.

The committee recommends the rejection of this resolution.

A Member: I second the motion.

Vice-Speaker Charnock: It has been moved and seconded that we adopt this section of the committee's report, as to Resolution No. 6 regarding hospital standardization. It was introduced by James Raphael of Alameda County. Do you want me to read it?

Several Members: No.

A Member: Mr. Speaker, I understand that the introducer of this resolution agrees with the recommendation of the committee. Is that correct?

Dr. Raphael: On advice of Mr. Hassard, I do agree with the recommendation of the committee.

Vice-Speaker Charnock: The question is on the adoption of this section of the report, No. 6, which would have the effect of rejecting the resolution. Is there any more discussion on it?

Dr. Belt (Los Angeles County): It seems to me that this resolution merely seeks to give effect to the resolution already passed by the House of Delegates to the American Medical Association in 1948, in which the House of Delegates of the American Medical Association recommended to the hospitals a plan of hospital standardization. This is just to spur them along to do that. It is well-known how hospital standardization originated and how it was operated to the detriment of the great sections of the profession. It is also believed by all of us that it is time the American Medical Association agrees on the situation and sets up its own standardization for hospitals, in the interest of the whole profession, and not that section of it. That section has set up standards for its own purpose, and is using it for its own business.

I don't see why this is an inopportune time to ask the American Medical Association to put its own resolution into effect. I would like to have that explained.

Vice-Speaker Charnock: Mr. Hassard, will you come forward to explain that part of it?

Mr. Hassard: Mr. Speaker, and members of the House of Delegates, the matter was discussed rather fully before the Reference Committee. You heard the author of the resolution state he is in agreement with the Reference Committee, and I would prefer not to discuss it further at this time, if I might have that privilege.

Vice-Speaker Charnock: Is there any more discussion on this Resolution No. 6? The question is on the adoption of the committee's report, which in effect will reject this resolution.

Those that are in favor will signify by saying "aye."

. . . The motion was put to a vote. . . .

Vice-Speaker Charnock: The Chair is in doubt. We will have a rising vote.

. . . A rising vote was taken on the motion. . . .

Vice-Speaker Charnock: The resolution is rejected.

Dr. Jacobs: Resolution No. 7: The purpose of this resolution is to decentralize the Public Relations efforts of C.M.A. and to point up the need for same.

The committee investigated this subject thoroughly and believes, in view of the facts that the Southern California office of the C.M.A. has been in existence for less than a year and that continued improvements are contemplated as the need arises, that this resolution appears to be premature.

The committee recommends rejection of this resolution.

A Member: I second the motion.

Vice-Speaker Charnock: The question is on the adoption of this section of the report. Is there any discussion?

If, not, those in favor will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No. 8: The intent of this resolution is a complaint of the service rendered in San Diego through the Southern California office of the C.M.A. This is an honest and sincere complaint.

The committee rejects this resolution on the grounds that it feels some of the factors of the resolution have already been satisfied and there is evident assurance that there is already movement on foot to undertake the other measures referred to.

Your committee moves that this resolution be rejected.

Vice-Speaker Charnock: Do I hear a second?

A Member: I second the motion.

Vice-Speaker Charnock: The question is on the adoption of this section of the report. Is there any discussion?

If not, those in favor will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No. 9: The intent of this resolution is to study the use of C.M.A. funds expended in advertising by radio through "California Caravan," particularly C.P.S. and other phases of organized medicine. The committee sees no harm in reviewing an expenditure.

The committee believes, however, that "California Caravan" along with C.P.S. is one of our better weapons of good Public Relations. The committee wishes to congratulate the Council of the C.M.A. and the Committee on Public Relations on doing a job well, for giving the physicians of California a winning team. The committee has changed the last paragraph of this resolution to read:

Resolved: That the Public Relations Committee of C.M.A. be requested to study carefully the phases of organized medicine publicized by the radio program, "California Caravan," that said Public Relations Committee of the C.M.A. be requested to review the use of C.M.A. funds to publicize California Physicians' Service.

The committee recommends the adoption of this resolution as amended.

Vice-Speaker Charnock: The question is on the adoption of this section of the report. Is there a second?

Several Members: Second.

Vice-Speaker Charnock: It has been moved and seconded that we adopt this section of the report. Is there any discussion?

Those in favor of adopting this section of the report will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No. 10: The intent of this resolution is to keep the doctors out of the social security system and away from the collective state and on the road of good American free enterprise. The resolution was amended by changing the word "instructed" in the last paragraph to the word "requested."

The committee recommends the adoption of this resolution as amended.

A Member: I second the motion.

Vice-Speaker Charnock: The question is on the adoption of this section of the report. Is there any discussion?

Those who are in favor of the adoption of this will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No. 11: This resolution reaffirms the recommendation of the C.M.A. and A.M.A. to foster the establishment of a General Practice Section in approved hospitals. The committee also feels that the General Practice Sections themselves should work harder on this problem and take the initiative in improving this condition.

The committee recommends the adoption of this resolution.

A Member: Second.

Vice-Speaker Charnock: The question is on the adoption of this section of the report. Is there any discussion?

Those who are in favor of the adoption of this section of the report will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Dr. Jacobs: Resolution No. 12: The intent of this resolution is to have the A.M.A. include the setting up of General Practice Sections as one of the requirements in hospitals approved for teaching. This resolution was amended by changing the last paragraph so that it now reads:

Resolved: That the delegates of the C.M.A. request the delegates from California to the next A.M.A. House of Delegates meeting to introduce a similar resolution at their next meeting to recommend to the Committee on Hospitals of the A.M.A. to include in their requirements for approval of hospitals the establishment of a section on general practice with status similar to that of other departments wherever this is practicable.

The committee recommends approval of this resolution as amended.

Vice-Speaker Charnock: Do I hear a second?

A Member: I second the motion.

Vice-Speaker Charnock: The question is on the adoption of this section of the report. Is there any discussion?

Those that are in favor of the adoption of this section will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: Is there a second?

Dr. Jacobs: Resolution No. 13: The committee recommends rejection of this resolution and presents the following substitute resolution:

Whereas, Local hospital districts were authorized in 1946 by the State Legislature by adding a new chapter to the Health and Safety Code, and

Whereas, High professional standards must be maintained in hospitals built under the local hospital district law in order to protect the health of the community and promote the general welfare; now therefore be it

Resolved: That the C.M.A. firmly believes and represents that the public interest requires that the minimum standards for practice in district hospitals must be not less than the standards for practice that have been developed and established for private hospitals in this state that are approved for nurse or intern training.

The committee recommends that the substitute resolution be adopted.

Vice-Speaker Charnock: Is there a second?

A Member: I second the motion.

Vice-Speaker Charnock: The question is on the adoption of the substitute resolution. Is there any discussion?

Those that are in favor of the adoption of this substitute resolution will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No. 14: The intent of this resolution is a complaint against the physician caste system in government, legal and insurance medicine. In the C.M.A. all are equal and there is no caste system.

The committee recommends the rejection of this resolution and submits this substitute resolution:

Whereas, The California Medical Association has endorsed, and continued to endorse, the granting of Specialist Certificates for the purpose for which they were intended, but not for legal differentiation between physicians, and

Whereas, The California Medical Association is an organization of physicians and surgeons holding equal licenses to practice granted by the State of California; now therefore be it

Resolved: That this House of Delegates requests the officers and members of the California Medical Association to advocate equal treatment of physicians by insurance companies, governmental agencies and others interested so that duly licensed doctors of medicine are considered equally in the eyes of the law.

The committee recommends adoption of the substitute resolution.

Vice-Speaker Charnock: Is there a second?

A Member: I second the motion.

Vice-Speaker Charnock: The question is on the adoption of this substitute resolution. Is there any discussion?

Those that are in favor of the adoption of this substitute resolution will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No 15: The intent of this resolution is to discourage the use of fictitious names in the practice of medicine in California.

The committee recommends the adoption of this resolution.

Vice-Speaker Charnock: Is there a second?

A Member: I second the motion.

Vice-Speaker Charnock: The question is on the adoption of this section of the report. Is there any discussion?

Those that are in favor of the adoption of this section of the report signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No. 16: The intent of this resolution is to require local county association membership, regardless of geographical migration of the physician, through A.M.A. regulation. This resolution was amended by changing the word "eight" to "twelve" in the last paragraph.

The committee recommends adoption of this resolution.

Vice-Speaker Charnock: Is there a second?

A Member: I second it.

Vice-Speaker Charnock: The question is on the adoption of this section of the report favoring adoption of the resolution as amended. Is there any discussion?

Those that are in favor of adopting this section of the report signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No. 17: Regarding Ambulances. The committee rejects this resolution on the grounds that it feels that the problem is outside the jurisdiction of C.M.A. It would seem that this is a problem of the State Highway Patrol and other law enforcement agencies.

The committee recommends the rejection of this resolution.

A Member: I second the motion.

Vice-Speaker Charnock: It has been moved and seconded that we accept this section of the report which has the intent to reject the resolution. Is there any discussion on the question?

Those that are in favor of this section of the report will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No. 18: The intent of this resolution is to teach and train interns and residents about certain aspects of economic medicine after the manner of free enterprise. Otherwise we are likely to lose the newer generation of doctors to a collectivist ideology. The committee feels that this is a training problem that we should take advantage of. The committee feels that this problem is not within the province of present constituted committees.

The committee amends this resolution by changing the word "instructed" to the word "requested" in the second sentence of the last paragraph; and by introducing the phrase "if necessary" in the last sentence in the last paragraph following the phrase, "To this end."

The committee recommends the adoption of this resolution as amended.

Vice-Speaker Charnock: Do I hear a second?

A Member: I second the motion.

Vice-Speaker Charnock: The question is on the adoption of this section of the report. Is there any discussion? All those in favor of this section of the report will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Resolution No. 19: The intent of this resolution is to point up the fact that many members of the C.M.A. and specifically members of the Fee Schedule Committee feel that they have not been able to get a proper hearing before, or action by, the Board of Trustees of C.P.S. This resolution is an effort to establish a coordinating body that was intended to resolve this difficulty.

The committee spent much time in listening to witnesses regarding this measure. The witnesses consisted of officers and delegates of the C.M.A.; trustees of the C.P.S.; legal counsel of C.P.S. and C.M.A.; as well as proponents and opponents of the resolution.

The committee feels, as a result of the hearings, that the resolution would not accomplish the intent desired; that adoption of this resolution would interfere with the existing effective liaison between C.M.A. and C.P.S. by introducing an unwieldy third element; and that it would interrupt the proper functioning of C.P.S. and would necessitate major constitutional changes in C.M.A., and in the Articles of Incorporation of C.P.S.

The committee respectfully suggests to the officers of the C.M.A. and to the Board of Trustees of C.P.S. that they recognize the existence of a problem, and further requests that study and action be engaged in to correct what appears to be an unsatisfactory situation.

The committee recommends rejection of this resolution.

A Member: I second the motion.

Vice-Speaker Charnock: The question is on the adoption of this section of the report. Is there any discussion?

Dr. Bender.

Dr. Bender: I apologize for appearing before you once again, but this is just to keep the record straight. All of the committee's objections on a legal basis were removed before this resolution left the committee, by mutual agreement between the proponents and the members of the committee. I see that in spite of the agreement to remove certain objectionable factors, which I already pointed out to you in this report, that was not done in the printed forms that you received. So, I believe that the committee has not been exactly fair in making the changes the committee and proponents agreed upon when the committee makes its recommendations to you.

Now, the committee makes the recommendation and respectfully suggests that further studies be made of this subject.

I would like to ask the Chair if it is out of order to make a motion to that effect now.

For the benefit of the Chair I repeat that question. The committee feels as a result of the hearings that certain things should be done and they respectfully suggest to the officers of C.M.A. and the board of C.P.S. that they recognize the existence of a problem and further request that study and action be engaged in to correct what appears to be an unsatisfactory condition.

I ask the Chair whether or not I am out of order to make a motion toward that end at this time.

Vice-Speaker Charnock: You may amend the report, that section of the report. You can put that in as an amendment. We will accept it as an amendment.

Dr. Bender: I make the following amendment to the report of the Reference Committee: That a committee of five members of the House of Delegates be appointed to make a study of the problem which the Reference Committee admits exists and that within six months it return its results, the results of its study on the advisability of resolving this weakness in the set-up of C.P.S., and that it make this report to the Council of the California Medical Association.

Vice-Speaker Charnock: Is there a second to that amendment?

A Member: I second the amendment.

Vice-Speaker Charnock: The amendment is seconded. The vote is now on the amendment to that section of the report. Is there any discussion on that?

Dr. Jacobs: I just want to say one word about the resolution. Dr. Bender said that the resolution is changed. However, you will notice on this mimeographed copy that Resolution No. 19 is in the exact wording as presented by Dr. Bender. There wasn't a word changed.

Dr. Loos: Mr. Speaker, I would like to ask this of Dr. Bender: I would like to have the record straight. Dr. Bender, in his report to you about the Resolutions Committee No. 3, stated that there had been an agreement arrived at between the committee and Dr. Bender regarding certain phases of this matter.

Now, I was there, and I did not hear any agreement made with anybody on this resolution or any other resolutions. Thank you.

Vice-Speaker Charnock: Is there any more discussion?

Dr. Bender: I don't know whether you have the original of the resolution which was presented by us or not, but one of them was marked in purple ink by Dr. Jacobs' pen, showing the things that were crossed out by me in his presence, and in the presence of the other two members of the committee as the amended resolution which we were then presenting to the Resolutions Committee.

It is entirely the business of the Resolutions Committee as to whether or not they accept such changes or whether they accept the resolution or reject it. I am not interfering with that.

But the fact remains that we made certain changes in there in their presence, and I have no written agreement to the contrary notwithstanding. But, it seems to me, I got the impression that they believed that these corrections would be acceptable to the committee. As a matter of fact, certain of us who were there were told before we left that this resolution would be acceptable to the committee who subsequently changed their minds and left out the changes which we made.

Vice-Speaker Charnock: As a point of information for the House, the mimeographed sheet is the stencil that has been cut just as the resolution was put in to the Reference Committee, and the Reference Committee's report is on the other mimeographed sheet.

The question is now on the amendment by Dr. Bender, which has been seconded; the appointment by the Council of five members of the House of Delegates to make a study of the problems connected with this section of the report.

Is there any further discussion on that amendment?

Those who are in favor of the amendment will signify by saying "aye."

. . . The motion was put to a vote. . . .

Vice-Speaker Charnock: The Chair is in doubt. Those who are in favor will please stand up.

. . . A rising vote was taken on the motion. . . .

Vice-Speaker Charnock: The amendment carries.

The question is now on the adoption of this section of the report as amended. Is there any further discussion?

Those in favor of this section of the report will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Vice-Speaker Charnock: It is adopted.

Dr. Jacobs: Under new and miscellaneous business, I wish to present the resolution that was read from the floor earlier this evening. In order to refresh your minds on it I will give you the resolve part of it. It was presented by Dr. Justin Stein.

Therefore be it

Resolved: That the President of the California Medical Association be instructed at this session to appoint a permanent Committee on Military Affairs, whose duties shall be to:

1. Establish liaison between the Medical Advisory Committee to the Secretary of Defense and the American Medical Association on all matters pertaining to the procurement and assignment of physicians.
2. Assist in the formulation of any legislation, if it should be required, to obtain physicians for the Armed Forces during peacetime.
3. Help establish proper quota of physicians for the Armed Forces during both peace and war time in the State of California.
4. Establish liaison between the various county medical societies of the state and keep them informed on all problems pertaining to the procurement and assignment of physicians.
5. To work with the Disaster Control Committee regarding the coordination of civilian disaster plans with those of the military during major disasters, such as fire, earthquake, atomic warfare, and so forth.

The committee has studied this over during the last hour or two and wishes to amend the resolution as follows:

The committee feels that this should be on a state level and not a national level as would be indicated in the resolution. The committee would add, in the third line of the paragraph beginning "Therefore be it resolved," these words: "whose duties with respect to the State of California," etc.

Then, the committee would change the word "physicians" to "medical services," in the paragraph numbered "2."

And in No. 3, it would delete "in the State of California," as being redundant.

Mr. Speaker, the committee recommends the adoption of this resolution as amended.

Vice-Speaker Charnock: Do I hear a second?

A Member: I second the motion.

VICE-SPEAKER CHARNOCK: Is there any discussion?

DR. THOMAS (Palo Alto): Because Resolution No. 3 and this one are somewhat conflicting and overlapping I see that either to withdraw one or the other is in order. Because there are a few more specific implications by this last resolution that are not included in Resolution No. 3 and because there are certain things covered in Resolution No. 3 that are not covered by this one, I believe that there should be an amalgamation of the two.

I don't believe either one of them should be thrown out, the reason for this being merely a surface show.

In other words, the intent of both is the same—to set up some sort of liaison between the medical profession and the military.

VICE-SPEAKER CHARNOCK: Is there any further discussion?

The question is on the adoption of this resolution as amended by the Reference Committee.

Those that are in favor will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

VICE-SPEAKER CHARNOCK: It is adopted.

DR. JACOBS: Mr. Speaker, members of the House, the committee recommends the acceptance of the report of Reference Committee No. 3 as a whole.

VICE-SPEAKER CHARNOCK: Is there a second?

A MEMBER: I second the motion.

VICE-SPEAKER CHARNOCK: The question is on the adoption of the report of the Reference Committee No. 3 as a whole, as amended.

Those in favor of adopting this report will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

VICE-SPEAKER CHARNOCK: The Chair wishes to thank Dr. Francis Jacobs, Dr. H. Clifford Loos and Dr. M. Laurence Montgomery for their work on this committee. (Applause.)

The next order of business is the report of Reference Committee No. 2 on reports of the Secretary-Treasurer and the Executive Secretary on Budget and Dues. Dr. Alson R. Kilgore, chairman.

REPORT OF REFERENCE COMMITTEE
No. 2

DR. ALSON R. KILGORE: Mr. Speaker and members of the House of Delegates: Your Reference Committee, Stanley R. Truman of Alameda, Dr. G. Wendell Olson of Orange, and I, has considered the reports assigned to it by the speaker and submits for your consideration the following recommendations:

Report of the Secretary: Another year finds our Association more profoundly in debt to its members who serve as officers and on committees for the good of the cause and the love of their profession. It would be difficult to place them in the order of magnitude of their contribution but the Secretary stands high on the list. Your committee can only recommend a formal expression of thanks and appreciation from this body.

Mr. Speaker, I move the adoption of this section of the report.

A MEMBER: I second the motion.

VICE-SPEAKER CHARNOCK: It has been moved and seconded we adopt this section of the report. Is there any discussion?

Those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

VICE-SPEAKER CHARNOCK: It is adopted. (Applause.)

DR. KILGORE: Report of the Treasurer: The Treasurer's financial statements are printed in full in the annual report bulletin and require no explanation by this committee.

Mr. Speaker, the committee moves the adoption of the Treasurer's Report.

A MEMBER: I second the motion.

VICE-SPEAKER CHARNOCK: The question is on the adoption of this section of the report. Is there any discussion?

SEVERAL MEMBERS: Question.

VICE-SPEAKER CHARNOCK: Those that are in favor of the adoption of this section of the report will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

VICE-SPEAKER CHARNOCK: It is adopted.

DR. KILGORE: Report of the Executive Secretary: The Report of the Executive Secretary enumerates ten major activities ranging from that of general business manager to promotion agent. Some of these categories comprise numerous subdivisions such as serving as secretary for about two dozen standing and special committees, which he modestly admits he has done when invited. It appears to this committee he has been as busy as a small boy at a side show. Your Reference Committee appointed a subcommittee to study the report. The subcommittee got so tired just reading about all the work that he adjourned to the bar to restore his depleted tissues and the rest of the committee had to go down and catch him and bring him back.

The report contains little estimate of the quality of the job turned in, as indeed it does not need to. The quality speaks for itself. The Association is fortunate to have a man in this position who has made our interests so wholly his and who is able to spread himself so thin and yet be so effective. We recommend that the House express to John Hunton our appreciation, and our admiration and esteem.

Mr. Speaker, I move the adoption of this section of the report. (Applause.)

A MEMBER: I second the motion.

VICE-SPEAKER CHARNOCK: It has been moved and seconded that we adopt this section of the report. All in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

VICE-SPEAKER CHARNOCK: It is adopted.

DR. KILGORE: You have in your hands a copy of the proposed budget for 1949-1950. This varies from that proposed by the Council chiefly in the items of estimated income, and in the estimated balance between income and expenditures.

The Council's estimation of income is based on dues from approximately 10,000 members at $37. That means dues at $40 with $3 allocated to the CALIFORNIA MEDICINE, making a net to the Association of $37.

This item would be $372,000. On this basis operations for the year with expenses as estimated would result in a deficit of $31,500. Your committee believes that the estimate of 10,000 members is perhaps a little optimistic. It is our understanding that there are, of this date, 9,600 members.

Some new members are to be expected during the year, but it is to be remembered that members joining after mid-year pay half dues. Is that correct?

EXECUTIVE SECRETARY HUNTON: Correct.

DR. KILGORE: It seems to our committee that 9,750 members would be a safer estimate, in which case the deficit of $31,550 would be increased by $9,250 to a deficit of $40,800.

First, about the desirability of deficit financing with reference to the combined balance. If you have your convention bulletin and will turn to page 16 in the Annual Reports, the top table on the page, third column, you will find that the combined surplus of the C.M.A. and Trustees is set down as of June 30, 1948, as $1,155,231.65.

On the proposed budget sheet you will find shown a balance from 1948-1949 operations estimated at $105,195. Presumably this will be added to the above surplus, making a total surplus at the end of this fiscal year of $1,260,426. That is roughly a little over one and a quarter million.

Your committee believes that dues should be reduced rather than added substantially to this surplus, but we do not believe that it would be sound to start cutting the surplus down for current operating expenses.

The proposed estimates of various expenditures as shown on this sheet you have in your hands have been made on what is believed to be a liberal basis, and that actual operations cost will prove to be sufficiently less than estimates in many instances, so that a separate item for contingencies has not been included.

Certain items in the budget deserve a little special comment. First, Item No. 11, American Medical Association meeting expense. The House passed the resolution earlier this evening to pay the expenses of alternates as well as delegates and this will in an ordinary year substantially increase the cost incurred but will not be so effective this next year because the meeting will be in San Francisco.

The delegation has, however you should remember, been increased by one and by one alternate. The figure $15,000 shown is believed to be a reasonable and liberal estimate for that.

Cancer Commission, Item No. 17, shown in the budget a year ago at $5,000. This year it is estimated at $6,000. The estimated budget request is for $25,000. This is substantially increased because it is expected during next year a series of cancer commission articles will be completed in handbook form and distributed to the membership, and also because of the action of the Council in taking over from the government certain expenses in connection with the cancer seminars that are being held throughout the state.

No. 3, Department of Public Relations, Item No. 16. Earlier this evening in a resolution that you adopted you implied at least a continuation of the public relations program, substantially as it has stood. This includes as its major item of expense the "California Caravan" program and your committee agreed in advance with a decision this House had taken tonight. That is, after all, a very major item and if you will bear with me for two or three minutes I think we ought to take back to our constituents a little more extended explanation than was given earlier this evening.

The committee found when we got together that we had all come to Los Angeles with the feeling that "California Caravan" ought to be discontinued as an expensive and unnecessary luxury, for two reasons. In the first place, we think the show is lousy. If I remember correctly, a considerable number of delegates a year ago expressed that same opinion in no uncertain terms.

In the second place, because it has served its purpose, the main fight against socialized medicine is now on a nationwide basis rather than here in California, although I think your Public Policy and Legislative Committee chairman will tell you it is by no means abated yet in California.

Now, we would like to change our minds after consultation with a number of people including Mr. Clem Whitaker, whose attitude was that "California Caravan" should be kept or rejected exactly as you saw fit, that it doesn't mean a major item in his national campaign at the present time.

He did want to point out certain aspects of it. In the first place, whether we like it or not ourselves, whether we think the show is corny, it does have a wide listening appeal. We are not trying to reach other members of the House of Delegates. We are trying to reach stenographers and housewives who vote just as heavily as we do, and the Hooper rating pretty consistently shows that this radio broadcast has an audience of around half a million people in California, many of them steady customers.

I asked Mr. Whitaker if it was not so that in general radio programs tend to run out, so to speak, go to seed, lose their appeal, and he said, "Certainly, that is true, but it isn't true yet of 'California Caravan,' and the Hooper rating figures comparing last year with this year show that."

If I remember the figures he had, during January, February and March the Hooper rating in all three months of 1948 was in the neighborhood of 4.0. The rating in January of 1949 was 4.6; in February, 4.0; in March, 4.9.

So, on the whole this year it has a 15 to 20 per cent wider appeal and greater effectiveness than it had a year ago. It is not necessary to use it for any one continuing purpose. If we feel that it has contributed the major part to the job of the explanation of California Physicians' Service at the time that explanation was needed and that we do not need it for continued expansion of C.P.S., it can be devoted to anything else we want to devote it to.

We can devote it to our defense against the next attack made on us in California. We can expect those with recurrent regularity. We can use it in the meantime to sell organized medicine, both California organized medicine and national, to publicize the services of organized medicine to the people of this country and so build up good will for organized medicine.

Finally, if we discontinue "California Caravan" at the present time, we give up a property which we cannot get back. We own the title to this show as long as we want to continue to use it, but once we have given it up, it is our understanding that it can be sold to any commercial sponsor that wants to accept it, and the presumption is that it wouldn't find much difficulty in finding a sponsor, and then we would not be able to get it back. We would also have lost the regular spot on the air.

We asked about the possibility of cutting down the expenses by reducing the time and were surprised to find cutting the time in half from 30 minutes to 15 minutes would reduce the cost of the radio time only about 20 or 25 per cent and would actually increase the cost of trying to prepare the program, because of the difficulties of condensing it to a 15-minute program.

So, your committee feels, as obviously this House of Delegates does, that this should be continued. The expenses of "California Caravan" are estimated on the basis of this year's expenses at approximately $88,000 for radio time and preparation of the show, and an additional $20,000 for newspaper advertising of the radio program.

Those figures are included in the total item in the proposed budget of $149,000 for the Department of Public Relations.

Now, your committee in considering this felt it was doubtful if the newspaper advertising contributed enough to the value of this show to justify a continuance of at least as much as $20,000 expenditure. We don't know. Perhaps there is no way of knowing until you experiment. We therefore recommend that the newspaper advertising be discontinued, at least on an experimental basis for 30 to 90 days, and see what happens to the Hooper rating. If it doesn't deteriorate the Hooper rating too much, conserve that $20,000, which is in itself sufficiently large to be a contingent item.

The budget as presented, therefore, comes up finally with a deficit in the lower right-hand corner of the page of $450, which, if our estimates are anywhere near correct, is substantially even.

This contemplates dues of $45 less $3 allocated to CALIFORNIA MEDICINE, and it is your committee's recommendation that the dues for the ensuing year be set at this figure.

Mr. Speaker, I move the adoption of this section of the committee's report.

A MEMBER: I second the motion.

VICE-SPEAKER CHARNOCK: It has been moved and seconded we adopt this section of the committee's report. Is there any discussion? If not, all those who are in favor of the adoption of this section of the report will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

VICE-SPEAKER CHARNOCK: It is adopted.

DR. KILGORE: Mr. Speaker, I move the adoption of the report as a whole.

A MEMBER: I second the motion.

VICE-SPEAKER CHARNOCK: It has been moved and seconded that we adopt this report as a whole. Those that are in favor of this adoption will signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

VICE-SPEAKER CHARNOCK: It is adopted as a whole. And the Chair thanks Dr. Alson Kilgore, Dr. Stanley R. Truman and Dr. G. Wendell Olson for their work in this behalf. (Applause.)

Announcements by the Secretary.

SECRETARY GARLAND: The Treasurer would like to state that when Dr. Smith of San Diego informed the San Diego delegates that dues for the next year would be $40, he did so in good faith. The Council thought that would be the approximate figure. We now see it is $45, and we apologize for the error.

VICE-SPEAKER CHARNOCK: Before we turn this meeting over to Dr. Alesen, we should thank Reference Committee No. 4, J. Norman O'Neill, A. A. Morrison, and Dr. Dave F. Dozier. They had nothing to do but they stood by.

SPEAKER ALESEN: Mr. Secretary, is there any old unfinished business?

SECRETARY GARLAND: Mr. Speaker, there is no old unfinished business on this docket.

SPEAKER ALESEN: Dr. Bruck.

DR. BRUCK: Was there not a report that was to be given to the House of Delegates by Dr. Cass on unfinished business?

SPEAKER ALESEN: Report by Dr. Cass.

DR. CASS: Mr. Speaker, members of the House, this report is in the nature of a follow-up report on the Industrial Accident Schedule. It is not a formal report because there is nothing formal to report. We had two meetings in the south with representatives of insurance companies elected by the insurance companies, and the meeting in the north with a statewide committee to try to assure the insurance representatives that we were not slamming the door in their face, not refusing them a chance to consider our new industrial accident schedule, not trying to stuff it down their throats.

As you know, before that insurance companies had refused to meet with us formally and we were left on the end of the springboard. We had to produce a fee schedule because we were notified by the Industrial Accident Commission that the old schedule would become ineffective as of June 30. The Commission recommended that we get together with insurance companies and figure out a fee schedule of our own which the Commission would consider according to the Workmen's Compensation Act and adjudge the claims in dispute.

When we tried to meet with the companies, they refused to meet formally and said they didn't object to doctors getting an increase in fees, but they objected to doing it formally because it would look like they were crossing up their insured, and they didn't want to be a party to raising the rates of insurance. So we went ahead and got our own fee schedule. You all got copies of it. As the companies still refused to meet with us, the Council sent you letters to ask you to put your new fee schedule into effect as of the first of February.

But we would not be able to enforce the new fee schedule or have hearings on it until after the 30th of June because the Commission had given us a little double talk, saying first of all they didn't have the authority to produce a fee schedule or recommend one, but they would continue the one they had already put into effect until next June 30. So we know if we would try to dispute our new fee schedule between now and June 30, the Commission would be in the position of having to refute its own fee schedule, the one that they say is the one for the next six weeks.

So, we were in a kind of impasse, and many of the members were disappointed to think that the Council hadn't backed them up, but as a matter of fact the insurance companies came to life all of a sudden when they found we actually had a fee schedule and were impatient to get together with us and thought we had done things without consulting them officially.

So, we contacted the insurance companies, got their committees organized, met twice in Los Angeles only to have the insurance companies tell us that the Los Angeles Commission wasn't official, that the official commission was statewide and to meet in San Francisco.

We went there and had a very good meeting. By the way, the committee that met with the insurance carriers was a second or separate committee of the Council of C.M.A., and our committee was Dr. Ball and Dr. Johnson, and two doctors of the Industrial Accident Commission, who assured us they think our fee schedule is exactly right, and they are going to back it up after June 30.

But, at the present time the only result of our meeting was a statement from the insurance companies that they wish to prepare a criticism or a new fee schedule to submit to us, that they had some ideas about submitting certain fees in one single total fee for procedures such as amputation of a finger or hernia, and they felt a flat fee would be better than a fee paid for visits.

We assured them we were not interested in reducing our schedule at all. Whatever fee they presented as a flat fee would be the same we would get if the same service were done under our schedule.

They promised to have a report for us immediately. Nothing happened.

Last Monday, John Hunton, in order to get a report for this House of Delegates, contacted them and asked them what they were going to do and they said they would have a report within a week. Then he asked them would they please write to the committee and tell them that.

I got a letter just a few days ago which was from the chairman of their committee, and they stated they were working on a fee schedule which they wished to present to us as soon as they could get it together.

Well, now, I don't believe they are going to present a fee schedule to us at all. I think they are just stalling, but that is only my opinion.

But the Council in this meeting this morning felt that it would be an expediency that we couldn't overlook in order to make this thing come to a head by the 30th of June that we would contact this committee again, that I would answer the letter and tell them that we will give them until the first of June, and if we don't have anything forthcoming by then we assume they are not going to do anything about it, and we insist our fee schedule be effective on July 1.

So, all of the members of the California Medical Association will get a letter from the Council some time after June 1, which I believe will say that after the first of July the services of our legal counsel are at your beck and call to enforce our fee schedule, and I am sure that when the first of July comes along we will not have very much opposition from the insurance companies, because already many of our members are getting paid right now under the new fee schedule.

It might be interesting to you all to know that a very short time ago—not more than six weeks ago—Mr. Gallagher, the manager of the State Compensation Insurance Fund, made his annual report to Mr. Scharenberg, head of that group of the committee of the state, and in this report he very proudly showed that the state fund increased its backlog of finance by two and a half million dollars, and had been able to make a return premium or dividend to their subscribers or members of 30 per cent of the premium.

If they have that kind of money it seems to me the only way an insurance company could make dividends available would be by accident prevention and not by sweating the dough out of the doctors.

So, I think we are pretty safe in saying there will be no valid arguments to keep our fee schedule off the books after the first of July. (Applause.)

Speaker Alesen: Dr. Cass, is there any action you suggest on this report, or is this just informative?

Dr. Cass: I believe the letter from the Council will be forthcoming after the first of June. It doesn't require any action.

Speaker Alesen: Thank you.

Mr. Secretary, is there any further old unfinished business?

Secretary Garland: Dr. Bruck, is there any additional business? (Laughter.)

Speaker Alesen: The Chair at this time under the subject of new business requests the consent of the House to invite Dr. John Cline to present a resolution for the good of the order. Dr. John Cline needs no introduction to this House.

Dr. Cline: Thank you, Mr. Speaker.

In the interest of keeping the record straight I shall ask that someone else introduce this resolution because I am no longer a member of the House. (Laughter.)

The resolution is as follows:

Resolved: That the House of Delegates of the California Medical Association express to the President of the United States, the Federal Security Administration, the Senators and Members of Congress from California that the California Medical Association is opposed to the socialized medical program proposed by the President for the following reasons:

1. It would result in damage to the medical care, health and welfare of the people of this country.
2. It would regiment the people and the medical profession of this country.
3. It would impose an additional heavy burden of taxation upon all the people.
4. The problems of distribution of medical care are in the process of orderly solution. The ultimate complete solution of these problems can be accomplished without resort to socialistic measures. (Applause.)

Speaker Alesen: Just to keep the technical record straight, will someone move the adoption of that?

Dr. Ward: Could I have that honor?

Speaker Alesen: Would you like to speak on the resolution while you move its adoption?

Dr. Ward: Mr. Speaker and members of the House of Delegates, I take great pleasure in introducing the resolution just read to you by Dr. Cline, with gusto. I regret that Ed Bruck didn't have the chance to do it. It is because I spoke a little faster than he did.

I move the adoption of this resolution.

Dr. Bruck: I second the motion.

Speaker Alesen: Is there a discussion?

If not, all those in favor signify by saying "aye."

. . . The motion was put to a vote and was carried. . . .

Speaker Alesen: Mr. Secretary, will you record it that the adoption was by unanimous vote.

Secretary Garland: It is recorded.

Speaker Alesen: Is there any other new business to come before the House at this time?

Secretary Garland: No other business.

Speaker Alesen: At this time, members of the House of Delegates, it is my good pleasure to present to you your new President, Dr. R. Stanley Kneeshaw. He is not unknown to you. (Standing applause.)

President Kneeshaw: Thank you Mr. Speaker. Members of the House of Delegates and guests, as I accept this honor to become your President, I stand awed by the magnitude of the problems that present themselves to us today. At no time in our history has our profession been so threatened by politicians, social workers and do-gooders.

We have witnessed the fall of medicine in England to a low ebb because of disunity of the medical profession and unpreparedness of that profession to defend itself against the politicians.

Are we to stand idly by here in the United States and let that same thing happen to us? We must be united in our efforts and if we can but rally our members to be loyal to stand by our leaders, to be willing to sacrifice and give unstintingly of their time to carry our message to the people, we have nothing to fear.

If you delegates to the C.M.A. assembled here can act in your own communities to radiate that energy, activate the other members of our local societies to get these messages over, we can succeed.

We must be willing to sacrifice our time and our money in order to protect the people of these United States from the catastrophe that would befall them should this socialized medicine be instituted in these United States.

Because we in California have had a good deal of experience in combatting this socialized medicine we might perhaps be called upon to assist in combatting this type of legislation on a national level. We, therefore, must be prepared.

So let us put aside any petty grievances that we may have, be united as never before, keep our own house clean, make no mistakes in our good patient relationship so we in California can be proud of our efforts.

I want you to know that I well realize the tremendous affection that you and I have for Dr. Vince Askey who has done so much for us in the past, and I don't ever expect to attain such a position in your affections. I know I feel like any sprinter who tries to catch up to Mel Patton in the 100-yard dash, but I want you to know I will try to do a very good job.

So, once again, ladies and gentlemen, I wish to thank you for having had enough confidence in me to elect me to this high office. I know there will be many problems that will be difficult to solve, and I want to ask your aid in solving them, and that God give me the strength and wisdom to properly carry out the responsibility imposed upon me in accepting this honor. Thank you. (Applause.)

Now, my first official duty is to present to you a man that needs no introduction. I have been in this society long enough to have seen all the speakers of the House that you have had before you—Ed Pallette, Dr. Roblee, Dr. Lowell Goin, Vince Askey, and now again Louie Alesen.

These fellows, it seems, are all outstanding men and I would like to have the opportunity here and now to give my approbation to this little rascal who heads you up here all the time. (Standing applause.)

Now, my next task is to the guy who got me into this mess. I surely wouldn't be here tonight if it wasn't for this fellow. May I have somebody escort this gentleman up here—Donald Cass. Will you two gentlemen kindly escort that gentleman over there. (Standing applause.)

Dr. Cass: Well, I want to thank you. I didn't prepare a speech because it is a big surprise to be elected. (Laughter.)

But I feel just like Stanley does, following a bunch of Babe Ruths and Ty Cobbs and Goins and Askeys, and McClendons, and high class Presidents. I doubt if I can keep up their speed, but I will try as hard as I can. (Applause.)

President Kneeshaw: I next have the pleasure of presenting your Vice-Speaker. I have always been on this Council as Don has, and he has done a fine job. Don. (Standing applause.)

Vice-Speaker Charnock: At this hour, silence is golden. (Applause.)

President Kneeshaw: Now I would like to call upon one of our ex-presidents here. Where is John Cline now?

John, would you kindly come up here? You have a job to perform.

Dr. Cline: The job which is mine is indeed a pleasant one. It is pleasant for more reasons than one. As Stanley so well told you, the affection, the regard in which Vince Askey has been held by all those who worked with him—I must say that doubly do I have those sentiments toward him, because of my strong personal friendship for him as well as my admiration and respect for the things he has done in medicine. And because a year ago at this time I felt the relief of the burden falling from my shoulders and for the first time since I have been an active member of this House was it possible for me to have two meals with my wife in one day, I know that Vince is going to feel the same way; that he has done his job and that he now has earned a measure of relief.

But beyond that it is a great pleasure for me to be able to extend to him a token of appreciation of this Association for all that he has done for it. Vince, this plaque which the Association now presents to you, I hand you with every best wish. (Standing applause.)

Ex-President Askey: Ladies and gentlemen, I think that all men come to the end of a pleasurable journey with some degree of regret. But the knowledge that the memory can be recreated—all the thrills of that journey—assuages to some extent the regret that you feel.

My journey as your President has been pleasant indeed. But this has been true only because you were my companions and because I had a loyal understanding wife at my side. May I wish for the continued success and progress of our Association, and I bespeak for you, Stanley, loyal support to Stanley Kneeshaw.

I thank you from my heart and I will long treasure this token which you presented to me. Thank you. (Applause.)

Speaker Alesen: Mr. Secretary, is there any further business to come before the House before adjournment?

Secretary Garland: Mr. Speaker, there is the matter of the approval of the minutes.

Speaker Alesen: As customary, a committee is appointed for that purpose. Will the House concur? Hearing no objection, the House is assumed to concur. Is there any further business?

Does any member have anything for the good of the order? If not, the motion to adjourn is in order.

A Member: I so move.

Another Member: I second it.

. . . The motion was put to a vote and was carried. The meeting of the House of Delegates of the California Medical Association adjourned at 11:45 p.m.

Council Meeting Minutes

359th Meeting

Tentative Draft: Minutes of the 359th Meeting of the Council, Los Angeles, Saturday, May 7, 1949.

The meeting was called to order by Vice-Chairman Sidney J. Shipman in Conference Room No. 5 of the Biltmore Hotel, Los Angeles, at 10:00 a.m., Saturday, May 7, 1949.

Roll Call:

Present were President Askey, President-Elect Kneeshaw, Speaker Alesen, Vice-Speaker Charnock, Councilors Ball, Crane, Henderson, Anderson, Ray, Lum, Green, Cherry, MacLean, Hoffman, Shipman, Bailey and Thompson; Secretary Garland and Editor Wilbur.

Absent: Edwin L. Bruck and Wayne E. Pollock (illness).

Present by invitation were Legal Counsel Hassard, Executive Secretary Hunton, County Society Executive Secretaries Donovan of Santa Clara and Waterson of Alameda, Messrs. Clem Whitaker, Sr., Clem Whitaker, Jr., and Ned Burman of Public Relations Counsel.

1. *Minutes:*

(a) Minutes of the 358th meeting of the Council, held March 5-6, 1949, were approved.

(b) Minutes of the 214th meeting of the Executive Committee, held March 6, 1949, were approved.

2. *Membership:*

(a) A report of membership as of April 30, 1949, showing 9,319 active and 381 delinquent members, was received and ordered filed.

(b) On motion duly made and seconded, one member delinquent for 1947 and 1948 was voted reinstatement as an active member.

(c) On motion duly made and seconded, 1,264 members whose 1949 dues had been received since April 1, 1949, were voted reinstatement as active members.

(d) On motion duly made and seconded in each instance, 15 applicants were voted election to Associate Membership. These were:

James W. Ellis, Alameda County.
Edward Kupka, Alameda County.
Evelyn F. Buchheim, Fresno County.
Richard Argens, Napa County.
R. G. Berendsen, Napa County.
Karl A. Reed, Napa County.
Reginald S. Rood, Napa County.
Max Berger, San Francisco County.
J. L. E. Brindamour, San Francisco County.
Emanuel S. Cohen, San Francisco County.
Manuel Weber, San Francisco County.
Joseph Thomas Nardo, Santa Barbara County.
Jean Swain, Santa Clara County.
Rutherford O. Ingham, Santa Cruz County.
Stanley J. Smiley, Yuba-Sutter-Colusa County.

(e) On motion duly made and seconded in each instance, B. M. Marshall of Humboldt County and Frank J. Leavitt of Los Angeles County were voted election to Life Membership.

(f) On motion duly made and seconded in each instance, six applicants were voted election to Retired Membership. These were:

C. C. Campbell, Los Angeles County.
H. C. Smith, Los Angeles County.
H. O. Howitt, Marin County.
Raymond L. Johnson, Riverside County.
Herbert S. Thomson, San Francisco County.
LaVerne Wright, San Francisco County.

(g) On motion duly made and seconded in each instance, six applicants were voted to Affiliate Membership. These were:

William Creger, San Francisco County.
Wallace G. Elliott, San Francisco County.
Mary Gulbransen, San Francisco County.
M. Glenn Molyneaux, San Francisco County.
Edward Weinshel, San Francisco County.
C. Dwight Yates, San Francisco County.

(h) On motion duly made and seconded in each instance, 27 applicants were granted a reduction of dues because of postgraduate study or protracted illness.

(i) Correspondence with Dr. Richard F. Mogan of Los Angeles County was read, in which he stated that he was still in the practice of medicine and was not desirous of remaining as a Retired Member, as voted by the Council at the last previous meeting. It was pointed out that the Los Angeles County Medical Association has rescinded its action in voting him into Retired Membership, and on motion duly made and seconded, the Council voted to rescind its earlier action in electing Dr. Mogan to Retired Membership.

(j) It was pointed out that there are considerably more licensed physicians in California than are represented by the Association's membership roster and it was regularly moved, seconded and voted that the Committee on Organization and Membership be requested to investigate any reasons why more of these licentiates are not members.

(k) On motion duly made and seconded Dr. Franklin Brundage of Santa Barbara County was granted a reduction of dues for military service.

3. *Financial:*

(a) A report of bank balances as of April 30, 1949, was received and ordered filed.

(b) A balance sheet as of April 30, 1949, was received and ordered filed.

(c) A statement of income and expenditures for April and for the ten months ended April 30, 1949, was received and ordered filed.

4. *Medical Society of the State of California:*

Discussion was held on the continuing confusion in the minds of many members between the Association and the Medical Society of the State of California. On motion duly made and seconded, it was voted that the Executive Committee be instructed to meet with the Board of Trustees of the latter organization and attempt to work out a clarification of the organization's name, eliminate any possible confusion and report back to the Council at a later meeting.

5. *Meeting Place for 1950:*

Discussion was held on possible meeting places for 1950 and it was reported that invitations had been extended by Los Angeles, San Francisco, Palm Springs, San Diego, Santa Cruz and Santa Barbara. On motion duly made and seconded, it was voted to hold the 1950 Annual Session at Los Angeles. [NOTE: At the Council meeting of May 11, 1949, reconsideration was given and San Diego chosen as the 1950 meeting place.]

6. *Cancer Commission:*

(a) A letter of complaint, alleging exclusion of certain physicians from a cancer seminar sponsored, among others, by the Cancer Commission, was read and discussed. It was pointed out that specific invitations to this seminar had not been issued and that no physicians were excluded.

(b) It was regularly moved, seconded and voted unanimously that the Council request Dr. Lyell C. Kinney to continue as a member and chairman of the Cancer Commission.

7. *National Emergency Medical Service:*

A letter from Louis Johnson, Secretary of Defense, was read, in which he asked the Association to cooperate in securing voluntary recruitment of additional medical officers for the armed forces. The Secretary was instructed to make the need for medical officers known to the county medical societies and to solicit their aid in meeting the recruitment objective, subject to any instructions on this point which might be issued by the House of Delegates.

8. *Legal Department:*

(a) Mr. Hassard reported on a malpractice case which has recently been decided by the State Supreme Court, which has referred the case back to the trial court for further hearing. The case involves the principle of a general practitioner being required to possess the degree of skill ordinarily expected only in a medical specialist.

(b) Mr. Hassard reported on another malpractice case, where unsterile instruments were allegedly used and where Appellate Court had found to that effect, despite expert testimony and a jury verdict to the contrary. It was regularly moved, seconded and voted that the Association request the legal counsel to ask the Supreme Court for permission to appear as *amicus curiae.*

9. *Order of Business of House of Delegates:*

Speaker Alesen of the House of Delegates requested authority from the Council to change the order of business of the first meeting of the House in order to permit the delivery of a report on public relations by Mr. Whitaker. It was regularly moved, seconded and voted to approve this change.

10. *Public Relations:*

Mr. Whitaker spoke briefly on the progress of the A.M.A. public relations campaign and presented a proposed budget for the Association's 1949-1950 fiscal year. It was agreed to refer this budget to the Auditing Committee and the chairman of the Committee on Finance of the House of Delegates for consideration with the Association's complete 1949-1950 budget.

11. *California Physicians' Service:*

Drs. Chester L. Cooley and Donald Cass, Secretary and Trustee, respectively, of California Physicians' Service, appeared before the Council and reported: (1) that a new form has been developed to aid the physician in securing data for the determination of income ceilings; (2) that the Board of Trustees has approved a new fee schedule developed by a special fee schedule committee; (3) that C.P.S.'s financial condition is good, with more than $1,000,000 in reserves; and (4) that C.P.S. now has nearly 7,000 indivdual contracts in force and is considering an advertising campaign to increase this number.

12. *Employees' Retirement Program:*

Dr. Charnock placed a suggested employees' retirement program before the Council. On motion duly made and seconded, it was voted that his committee continue its studies and report back to the Council at a later meeting.

13. *Time and Place of Next Meeting:*

It was regularly moved, seconded and voted to hold the next meeting of the Council at 7:30 a.m., Sunday, May 8, 1949, in Conference Room No. 6 of the Biltmore Hotel, Los Angeles, and to continue daily meetings at the same hour through Wednesday, May 11, 1949.

Adjournment.

360th Meeting

Tentative Draft: Minutes of the 360th Meeting of the Council, Los Angeles, Sunday, May 8, 1949.

The meeting was called to order by Vice-Chairman Shipman at 7:30 a.m., Sunday, May 8, 1949, in Conference Room No. 6 of the Biltmore Hotel, Los Angeles.

Roll Call:

Present were President Askey, President-Elect Kneeshaw, Speaker Alesen, Vice-Speaker Charnock, Councilors Shipman, Ray, Anderson, Bailey, Henderson, Green, Lum, MacLean, Ball, Crane, Cherry and Thompson; Secretary Garland and Editor Wilbur.

Absent: Edwin L. Bruck and Wayne E. Pollock (illness).

Present by invitation were Dr. D. H. Murray, chairman of the Committee on Public Policy and Legislation; Dr. Donald Cass, Trustee of California Physicians' Service; Executive Secretary Hunton, Legal Counsel Hassard, Dr. Wilton L. Halverson, State Director of Public Health; Mr. Frank Kihm, executive secretary of the San Francisco County Medical Society; and Messrs. Clem Whitaker, Sr., Clem Whitaker, Jr., Ned Burman and James Dorais of Public Relations counsel.

1. *Budget for 1949-1950 Fiscal Year:*

Discussion was held on a suggested budget for the 1949-1950 fiscal year, subject to review and approval of the House of Delegates. An item for public relations for the year, suggested by Mr. Whitaker, was approved and ordered included in the budget. Dues of $40 for the calendar year 1950 were approved, and the entire budget was ordered submitted to the House of Delegates for review by the Committee on Finance and approval by the House.

2. *State Department of Public Health:*

Dr. Wilton L. Halverson, State Director of Public Health, discussed the problems confronting the hospital bureau of his department in the allocation or approval of state and federal funds for aid in hospital construction. He stated that the rule-of-thumb in the bureau was to deny the allocation of funds in areas where a county hospital contained one-third or more of the beds in the area. He also told of the difficulties involved in allocating funds as between two or more eligible hospitals in the same area. He requested that a committee of two or three members, representing the Association, be appointed to advise with this department on these and similar matters.

3. *C.M.A. Statement of Policies:*

A proposed statement of policies of the Association in regard to health care and extension of medical service was discussed and, after amendment, was, on motion duly made and seconded, adopted. [This statement was printed on page 504 of the June issue of CALIFORNIA MEDICINE.]

4. *Approval of Other Organizations:*

Discussion was held on the bases for Council approval of various organizations operating in the field of health care and it was regularly moved, seconded and voted that this matter be referred back to a special Council committee for further study and report back to the Council.

Adjournment.

361st Meeting

Tentative Draft: Minutes of the 361st Meeting of the Council, Los Angeles, Monday, May 9, 1949.

The meeting was called to order by Vice-Chairman Shipman at 7:30 a.m., Monday, May 9, 1949, in Conference Room No. 6 of the Biltmore Hotel, Los Angeles.

Roll Call:

Present were President Askey, President-Elect Kneeshaw, Speaker Alesen, Vice-Speaker Charnock, Councilors Green, Bailey, Hoffman, Henderson, Anderson, MacLean, Lum, Ball, Ray, Thompson, Shipman and Crane; Secretary Garland.

Absent: Edwin L. Bruck and Wayne E. Pollock (illness).

Present by invitation were Legal Counsel Hassard, Executive Secretary Hunton, Assistant Executive Secretary Wheeler, Dr. D. H. Murray, chairman of the Committee on Public Policy and Legislation; county society executive secretaries Kenneth Young of San Diego and Rollen Waterson of Alameda, and Messrs. Clem Whitaker, Jr., and Ned Burman of Public Relations Counsel.

1. *Merced County Hospital Situation:*

Drs. James L. Dennis of Merced and George B. Pimentel of Los Banos appeared by invitation before the Council and discussed the hospital situation in the city and the county of Merced, where the county hospital is reportedly in line for approval of state and/or federal funds for construction of an addition and where private cases are reportedly being treated by county-employed physicians, while a private nonprofit hospital in the area has been denied approval of government funds for additions.

Dr. Wilton L. Halverson, State Director of Public Health, appeared and discussed this situation, asking the assistance of the Association in working out this and similar problems facing the hospital bureau of his department.

On motion duly made and seconded, it was voted that the Field Secretary be instructed to proceed to Merced at the earliest practicable date to review the situation there and to make recommendations to the local physicians and to the Council.

Adjournment.

362nd Meeting

Tentative Draft: Minutes of 362nd Meeting of the Council, Los Angeles, Tuesday, May 10, 1949.

The meeting was called to order by Chairman Bruck at 7:30 a.m., Tuesday, May 10, 1949, in Conference Room No. 6 of the Biltmore Hotel, Los Angeles.

Roll Call:

Present were President Askey, President-Elect Kneeshaw, Speaker Alesen, Vice-Speaker Charnock, Councilors Ball, Crane, Henderson, Anderson, Ray, MacLean, Bruck, Cherry, Green, Hoffman, Bailey, Shipman, Lum and Thompson; Secretary Garland and Editor Wilbur.

Absent: Wayne E. Pollock (illness).
and Hiram D. Newton of the San Diego County

Present by invitation were Dr. D. H. Murray, chairman of the Committee on Public Policy and Legislation; Drs. Clarence Rees, William B. Black and Hiram D. Newton of the San Diego County Medical Society; Legal Counsel Hassard, Messrs. Clem Whitaker, Sr., Clem Whitaker, Jr., and Ned Burman of Public Relations Counsel, and Mr. Rollen Waterson, executive secretary of the Alameda County Medical Association.

1. *Standing Committee Appointments:*

Nominations for three-year appointments to standing committee membership were presented by the Council's committee and, after discussion were duly approved for announcement to the House of Delegates. These nominations were:

Committee on Associated Society and Technical Groups—J. Norman O'Neill, Los Angeles.

Committee on Health and Public Instruction—George M. Uhl, Los Angeles.

Committee on History and Obituaries — E. T. Remmen, Glendale.

Committee on Hospitals, Dispensaries and Clinics —John Sharp, Salinas.

Committee on Industrial Practice—Jerome W. Shilling, Los Angeles.

Committee on Medical Defense—H. Clifford Loos, Los Angeles (chairman).

Committee on Medical Economics—Arthur A. Kirchner, Los Angeles.

Committee on Medical Education and Medical Institutions—Francis Scott Smyth, San Francisco.

Committee on Membership and Organization—Verne G. Ghormley, Fresno.

Committee on Postgraduate Activities—Charles A. Broaddus, Stockton.

Committee on Publications—Keene O. Haldeman, San Francisco.

Committee on Public Policy and Legislation—Peter Blong, Alhambra.

Committee on Scientific Work—Clayton Mote, San Francisco.

2. *San Diego County Medical Society:*

Drs. Rees and Newton discussed with the Council the request of the San Diego County Medical Society for the assignment of public relations counsel to the San Diego area and other matters of mutual interest. Mr. Waterson discussed a study of the public relations situation in San Diego County which he had made at the request of the Council chairman; this study was received with the thanks of the Council and ordered made a part of the county society file.

3. *Meeting Place for 1950 Annual Session:*

Dr. Rees extended the invitation of San Diego for the 1950 Annual Session meeting place. It was regularly moved, seconded and voted that the decision of May 7 to hold the 1950 Annual Session in Los Angeles be reconsidered. It was agreed to reconsider this matter at a recessed meeting of the Council the afternoon of May 10.

4. *Public Policy and Legislation:*

Discussion was held on two physical therapy bills now before the Legislature and it was regularly moved, seconded and voted that the measures proposed by Senator Breed and Mr. Levering be approved in principle, with discretion granted the Committee on Public Policy and Legislation to approve such amendments as may be desirable.

5. *Recess:* At this point the Council voted to recess until 3 p.m.

6. *Reconvention Following Recess:*

On roll call at 3 p.m., all the officers and Councilors noted present at the morning session were present. Also present were Messrs. Hunton, Hassard, Waterson, and Kihm.

7. *Industrial Fee Schedule:*

Discussion was held on possible progress in negotiations between the Association and the insurance carriers relative to adoption of a new schedule of fees for industrial injury cases. Dr. Donald Cass, chairman of the Committee on Industrial Practice, reported on preliminary meetings with insurance representatives and it was agreed that June 1, 1949, should be fixed as the latest date at which a reply from the insurance carriers might be received if Association members were to receive proper notification of the Council's recommendations.

8. *California Physicians' Service:*

Dr. Donald Cass, as a Trustee of California Physicians' Service, reviewed discussions of the past year relative to formation of a national insurance company or membership enrollment organization for members of Associated Medical Care Plans, of which C.P.S. is a member. He expressed his own approval of the formation of such an organization and asked that the Council express its approval for the guidance of C.P.S. Trustees in their consideration of this matter. This request was discussed and it was agreed to defer action at this time.

9. *Blood Banks:*

The question of the Association's offering financial support to community type blood banks was discussed and it was regularly moved, seconded and voted to invite Dr. John Upton, chairman of the Blood Bank Commission, to the next Council meeting.

Adjournment.

363rd Meeting

Tentative Draft: Minutes of the 363rd Meeting of the Council, Los Angeles, Wednesday, May 11, 1949.

The meeting was called to order by Vice-Chairman Shipman at 7:30 a.m., Wednesday, May 11, 1949, in Conference Room No. 6 of the Biltmore Hotel, Los Angeles.

Roll Call:

Present were President Kneeshaw, President-Elect Donald Cass, Councilors Shipman, Ray, M. Laurence Montgomery, MacLean, Lum, Anderson, Cherry, Green, Crane, Henderson, Bailey, Ball, Thompson, Speaker Alesen, Vice-Speaker Charnock, Secretary Garland and Editor Wilbur.

Absent: Mayne E. Pollock and Benjamin Frees (illness).

Present by invitation were Executive Secretary Hunton, Legal Counsel Hassard, Assistant Executive Secretary Wheeler, Rollen Waterson, executive secretary of the Alameda County Medical Association; Kenneth Young, executive secretary of the San Diego County Medical Society; Glenn Gillette, executive secretary of the Fresno County Medical Society; Ned Burman of Public Relations Counsel and Mr. Elwood Bailey, director of the San Diego Convention and Tourist Bureau.

1. *Organization of the Council:*

Vice-Chairman Shipman presided and called for nominations for chairman of the Council. On motion duly made and seconded, Sidney J. Shipman was unanimously elected chairman.

On motion duly made and seconded, H. Gordon MacLean was unanimously elected vice-chairman.

On nomination duly made and seconded, L. Henry Garland was unanimously appointed Secretary-Treasurer.

On nomination duly made and seconded, Dwight L. Wilbur was unanimously appointed Editor.

On nomination duly made and seconded, Peart, Baraty & Hassard were unanimously appointed legal counsel.

2. *Meeting Place for 1950:*

The Council was addressed by Mr. Elwood Bailey, director of the San Diego Convention and Tourist Bureau, who outlined the meeting facilities available in San Diego, answered questions and issued an invitation for the C.M.A. to hold its 1950 Annual Session in San Diego. On motion duly made and seconded, it was voted to hold the 1950 Annual Session in San Diego, starting on April 30, 1950, and continuing for the necessary time.

3. *Study of Alcoholism:*

Discussion was held on the possibilities of publishing the *Study on Alcoholism* prepared by Dr. Cullen Ward Irish and members of his special committee appointed following the 1948 Annual Session. It was pointed out that this study was both complete and valuable and that its findings should be made more generally available.

On motion duly made and seconded, it was voted to investigate the cost of publishing this study and refer the matter to the Executive Committee for consideration.

4. *Manual of Joint Function Measurement for Disability Ratings:*

Dr. Cass called attention to the *Manual of Joint Function Measurement* for disability prepared by Dr. Packard Thurber under authority of the Council and more recently adopted as standard by the Industrial Accident Commission of the State of California. It was regularly moved, seconded and voted that investigation be made of the cost of publishing this manual, either through the Association itself or through an outside publisher, and the matter referred to the Executive Committee.

5. *Blood Bank Commission:*

The Secretary discussed the possibility of loans being made to county medical societies for the establishment of community type blood banks and cited Los Angeles County as one area where such a loan might be productive of advanced procedures and improved public relations. It was regularly moved, seconded and voted that the chairman of the Blood Bank Commission confer without delay with the officers of the Los Angeles County Medical Association and report back to the Council.

It was regularly moved, seconded and voted that authority be granted the Blood Bank Commission to appoint an assistant to the chairman, within financial limits to be determined by the Executive Committee.

6. *Sirens on Ambulances:*

Dr. Wilbur Bailey discussed a proposal to require removal of sirens from privately-operated ambulances and it was regularly moved, seconded and voted to refer this proposal to the Committee on Public Relations.

7. *Special Articles in* CALIFORNIA MEDICINE:

Dr. Wilbur reported that requests had been made for the publication in CALIFORNIA MEDICINE of special articles honoring members who had made outstanding contributions to the profession. There was general discussion and the matter was taken under advisement.

8. *Gorgas Nomination for Hall of Fame:*

A request for approval by the Council of the nomination of Dr. William Crawford Gorgas for inclusion in the Hall of Fame of New York University was presented and it was regularly moved, seconded and voted that the Council approve this nomination.

9. *San Diego County Medical Society:*

The question of providing, for a temporary period, a public relations representative for the San Diego County Medical Society was discussed and it was regularly moved, seconded and voted that the District Councilor and the President-Elect arrange a personal visit with the officers of the San Diego County Medical Society to discuss this matter.

10. *Appointment of Auditing Committee:*

Chairman Shipman announced the appointment of Dr. H. Gordon MacLean as chairman of the Auditing Committee, Drs. Donald Lum and M. Laurence Montgomery as members. The Council approved these appointments.

11. *Public Relations:*

Mr. Burman expressed the need for more resolutions in opposition to a system of national compulsory health insurance by the component county medical societies and it was regularly moved, seconded and voted that the Secretary renew the request to the county societies to take this action, copies of all resolutions to be sent to President Truman, members of Congress, Governor Warren, members of the Legislature and to Whitaker & Baxter, Chicago.

12. *Time and Place of Next Meeting:*

The time and place of the next meeting were left at the call of the chairman.

Adjournment.

SIDNEY J. SHIPMAN, M.D., *Chairman*
L. HENRY GARLAND, M.D., *Secretary*

CORRECTION

The In Memoriam column on page 515 of the June issue of CALIFORNIA MEDICINE contained notice that Dr. Clarence Augustus DePuy had died May 3, 1949. This was in error. It was Dr. E. Spence DePuy, brother of the surviving Dr. DePuy, who died.

NEWS and NOTES

NATIONAL • STATE • COUNTY

SAN FRANCISCO

Establishment of a **cardiovascular research laboratory** by the Stanford University School of Medicine was announced recently. Made possible by contributions from the Bothin Fund and individual philanthropists in San Francisco, the laboratory will be used as an aid in diagnosis of congenital heart disease in patients at Stanford University Hospital and in developing new diagnostic techniques.

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Dr. Dorothy Wells Atkinson, assistant clinical professor in the Department of Medicine at the University of California Medical School, last month was elected president of the American Medical Women's Association for the 1949-50 term.

* * *

Dr. Herbert M. Evans, director of the Institute of Experimental Biology at the University of California, last month was given the highest award of the Association for the study of Internal Secretions for "long-continued outstanding research which has notably advanced knowledge in the field of endocrinology, especially as regards the hormones of the anterior hypophysis."

* * *

A new section on **medical care administration** has been established by the School of Public Health at the University of California. The school is said to be one of five in the United States and the only one in the western states to undertake such a teaching and research program. Dr. E. Richard Weinerman, who was brought to the university as visiting associate professor of medical economics during the current year, will remain in charge of developing the new medical care curriculum.

Steps have been taken, it was reported, to make the new section a useful repository of factual data on medical economics. It plans to organize a library of related material and to conduct research concerning social and economic factors in medical care. The section hopes to serve as a source for consultation in problems of medical care, offering technical aid and other help to interested persons or organizations in the West.

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Dr. Harry C. Warren was elected first vice-president of the American College of Chest Physicians at a meeting of that organization last month in Atlantic City.

SANTA BARBARA

The Western Orthopedic Association will hold a meeting at the Santa Barbara Biltmore Hotel, Santa Barbara, October 19-21, 1949, according to announcement by the association.

SANTA CLARA

Dr. Milton Rose of Palo Alto recently was elected president of the Santa Clara County Mental Hygiene Association, succeeding Curtis Davis, principal of San Jose High School. At the same time it was announced that a grant received from the Rosenberg Foundation in San Francisco will enable the association to extend its work to studies and treatment in child guidance.

SANTA CRUZ

Dr. H. E. Trimble has been appointed medical director of the Santa Cruz County Hospital to succeed Dr. J. J. A. McMullin, resigned. Dr. Trimble formerly served at the medical relief out-patient clinic at San Diego with the Federal Security Agency.

SONOMA

Hartley Peart, legal counselor for the California Medical Association, spoke on "The Professions Today" at a joint meeting of the attorneys, dentists, pharmacists, and physicians of Sonoma County which was held recently under the sponsorship of the **Sonoma County Medical Society.** It was the first such meeting since the beginning of World War II.

GENERAL

Army Medical and dental officers will be given priority of consideration in assignment of quarters, and their families will be permitted to accompany them on tours of foreign duty under a new order by the Department of the Army. This policy, according to official announcement, is the latest step in "a continuing campaign designed to relieve the **critical shortage** of medical and dental officers in the Army by making their careers and living conditions more attractive."

* * *

In a move to provide better professional opportunities for **general practitioners,** a General Practice Branch has been established within the medical service organization of the United States Air Force, according to the office of the Air Surgeon. Richard J. Brightwell, major, M.C., has been appointed acting chief of the branch. Establishment of the branch followed a meeting between representatives of the armed forces and members of the committee on education of the **American Academy of General Practice.**

* * *

A resolution **opposing socialized medicine** was adopted unanimously by the American Council of Christian Churches at its recent convention at Denver. The resolution said, in part:

"Socialized medicine in any form, represents, we believe, a clear violation of the Fourth Amendment of our Constitution which guarantees 'the right of the people to be secure in their persons.'

"The battle against State medicine is not for the doctors alone, but it belongs to all Christian people who cherish their own freedom as well as the physician's."

The Second Annual Meeting of the **American Association of Blood Banks** will convene in Seattle, November 3-5, 1949. A program designed to be of interest to both scientific and administrative personnel of blood banks and hospitals has been arranged, according to a statement accompanying announcement of the meeting. Further information may be had from the office of the secretary, 3301 Junius Street, Dallas 1, Texas.

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Regarding the **status of electroshock therapy**, Dr. William C. Menninger, president of the American Psychiatric Association, and Dr. Nathan K. Rickles, president of the Electro-Shock Research Association, have jointly issued the following statement:

"Electroshock therapy is accepted today as the most effective physical agent in the successful treatment of the majority of the affective psychoses when given by properly qualified psychiatrists.

"It should be stressed that at no time is electroshock advanced as a cure-all, but only as one very effective agent in selected classes of mental illness. It should always be preceded by a complete and thorough psychiatric study of the patient which includes an evaluation of his mental and physical status, his family and his environment, and also be followed with adequate psychosocial study and psychotherapeutic guidance."

* * *

A rapid and accurate method for **reproduction of x-ray photographs** at a distance by wire or radio transmission, so that hospitals in isolated communities may avail themselves of the services of radiologists in larger communities, was described in the May issue of the *American Journal of Roentgenology and Radium Therapy*. The article tells of the daily successful use of roentgenographic facsimile transmission between a hospital and the offices of a roentgenologist 28 miles distant.

* * *

Although working a 60-hour week, the average physician in the United States manages to wedge more than one month of postgraduate study a year into his schedule, according to a survey conducted by Medical Economics. Practicing physicians average an equivalent of 20 days a year reading medical literature, eight days a year studying at medical schools and hospitals, and six days a year attending medical conventions, results of the survey showed.

POSTGRADUATE EDUCATION NOTICES

University of California, Los Angeles

Course: Clinical Neurology in Medical Practice.
Date: July 25 to July 30. Fee: $35.00.
Contact: Office of Medical Extension, University of California, Los Angeles 24, California.

University of California, Medical Center, San Francisco

Course: Medical Aspects of Nuclear Energy.
Date: August 29 through September 3, 1949. Fee: $60.00.
Contact: Stacy R. Mettier, M.D., Medical Extension, University of California Medical Center, San Francisco 22, California.

Course: Physics in Radiation Therapy.
Date: September 6 through September 9, 1949.
Of interest to radiologists, dermatologists, gynecologists, and physicians dealing with radioisotopes.

Course: Otorhinolaryngology, a continuation of 1947 course for specialists.
Date: September 5 through September 9, 1949. Fee: $60.00.

Course: Ophthalmology, a continuation of 1947 and 1948 courses for specialists.
Date: September 12 through 17, 1949. Fee: $60.00.

University Southern California Medical School

Listing of courses not available.
B. O. Raulston, M.D., Dean, 1200 N. State Street, Los Angeles 33, California.

College of Medical Evangelists

Listing of courses not available.
H. M. Walton, M.D., Dean, Graduate School of Medicine, Boyle and Michigan Avenue, Los Angeles 33, California.

Stanford University School of Medicine

The usual fall refresher courses will be given September 19 to 23. Fee: $75.00.
A full announcement of courses will appear in the August issue of CALIFORNIA MEDICINE.
Contact: The Office of the Dean, 2398 Sacramento Street, San Francisco 15, California. Telephone, WEst 1-8000.

* * *

BOOK REVIEWS

CHILD PSYCHIATRY. By Leo Kanner, M.D., Associate Professor of Pediatrics and Associate Professor of Psychiatry, The Johns Hopkins University, with prefaces by John C. Whitehorn, M.D., Henry Phipps Professor of Psychiatry, The Johns Hopkins University; Adolf Meyer, M.D., Henry Phipps Professor Emeritus, The Johns Hopkins University, and Edward A. Parks, M.D., Professor Emeritus of Pediatrics, The Johns Hopkins University. Charles C. Thomas, Publisher, Springfield, Illinois, 1948. $8.50.

This is a book which will go far to fill the need many pediatricians feel for a practical reference in the field of child psychiatry. It is a completely rewritten, second edition of a work which appeared in 1935 and was sufficiently well accepted to require five printings up to 1947. The thirteen years which have elapsed since the first printing are years of considerable growth in the field of child psychiatry. This growth, and the maturing effect the interval has had on Dr. Kanner's viewpoint, are both abundantly evident in this second edition.

The clarity of thought, the absence of specialized verbiage, and the general readability which characterize Dr. Kanner's writing, all add to the pleasure of using this text. His point of view is broad and "multidimensional"—and does not confine itself to a single school of thought.

Problems are well illustrated by examples taken from Dr. Kanner's clinical files, and references are abundant and up-to-date. The organization of the book and its index provide ready reference to everyday problems in child behavior.

More serious psychiatric disturbances are also discussed, but it is especially in the area of common behavior disturbances that the book is designed to offer the greatest help. It serves this purpose very well indeed.

* * *

MAGIC IN A BOTTLE. By Milton Silverman, Ph.D., Science Editor, San Francisco Chronicle, Macmillan Co., 1948. $3.50.

To write a reasonably accurate historical account of the development and use of many of the drugs which form an important part of the therapeutic armamentarium of the modern physician is a worthwhile accomplishment. To do so in a manner which is entertaining to the scientist and the medical practitioner, as well as to the layman, is a demonstration of an ability which is not frequently found. The author has done just that. Even though he has not attempted to produce an exhaustive account of this topic in this second edition of his book, he brings the subject matter up to date. Even though it is written more as a narrative than as a scientific thesis, it contains information which can be profitable to those who are interested in medical history and in the modern practice of medicine. The descriptions of the personalities involved are of special interest. The book is good reading.

* * *

TEXTBOOK FOR ALMONERS. By Dorothy Manchee, Almoner, St. Mary's Hospital, London, and Foreword by Sir Alfred B. Howitt, C.V.O., M.D., President, Institute of Almoners (Chairman, Institute of Hospital Almoners 1931-1945), The Williams and Wilkins Co., Baltimore, Md., 1947. $7.50.

An almoner has been defined as: "An official distributor of the alms of another; a functionary in a religious house or in a hospital, such as a chaplain, etc."

This book deals with the origin and growth of the almoner's service, social legislation, the economic and social aspects of disease and the almoner's place in a rehabilitation scheme. At first glance the American reader might feel that the text would only be of interest to hospital administrators and social service workers. However, since it represents the thinking of some distinguished medical sociologists in a country now thoroughly Beveridge-ized, our children may rebuke us for not taking off a few hours to peruse its contents.

St. Mary's Hospital in London has been visited by many physicians from California. The author has been almoner to that hospital for many years. The book was published before the National Health Act went into force but does contain many references to the adumbrating legislation.

* * *

1948 YEARBOOK OF OBSTETRICS AND GYNECOLOGY. Edited by J. P. Greenhill, B.S., M.D., F.A.C.S. The Yearbook Publishers, Inc., Chicago, Ill., 1949. $4.50.

The 1948 Yearbook of Obstetrics and Gynecology edited by J. P. Greenhill, M.D., of Chicago, like most former editions by this author, is a complete survey of the worthwhile literature of this field of medicine of the entire world. The Yearbook, with the crisp, honest comments of the editor, makes for pleasant as well as beneficial reading.

The Section on Obstetrics gives an encouraging report on the reduction of maternal and fetal mortality. The subject of the Rh factor is well covered, as well as the problem of rubella complicating the early months of pregnancy. Two new analgesics are presented—dolophine and inhalation trilene. The cesarean problem is well presented. The question of whether repeat sections should always be done is discussed by Greenhill. He feels that in most instances the danger of rupture is too great to allow these patients to go into labor.

In the section on Gynecology there are several articles reviewing the importance and value of hysterosalpingography for conditions other than sterility. Total hysterectomy continues to be a much discussed problem and the editor's comment on the articles by Pfaneuf and Jones is particularly timely, that is, "despite the advisability of total operations, men with limited experience in pelvic surgery are wise to perform supravaginal hysterectomies." Urinary incontinence and prolapse of the vaginal vault and the cervical stump are carefully reviewed.

The section on menstruation and endocrinology will save hours of useless reading because all of the worthwhile articles are summarized and Dr. Greenhill has crystallized the thinking of most gynecologists in a very satisfactory manner.

As usual, everyone doing Obstetrics and Gynecology should have this valuable epitome of the literature of 1948.

* * *

FAILURES IN PSYCHIATRIC TREATMENT. Edited by Paul H. Hoch, M.D., New York State Psychiatric Institute, N. Y. C.; Principal Research Scientist (Psychiatry), New York State Psychiatric Institute; Associate in Psychiatry, Columbia University College of Physicians and Surgeons, N. Y. C.—The Proceedings of the Thirty-seventh Annual Meeting of the American Psychopathological Association, held in New York City, June 1947. Grune and Stratton, New York, 1948. $4.50.

This book contains the procedures of the 37th annual meeting of the American Psychopathological Association held in June, 1947. It is of special interest because unlike most reports it does not discuss cures and ways in which success was achieved. Instead it discusses the failures and the reasons for failure. This is a very interesting and valuable approach. In most books, emphasis has been mainly on doing certain things which will achieve cure. Causes of failure have been touched on many times but there are very few works which set down and analyze the causes of failure. The book therefore is to be highly recommended to everyone interested in psychiatric treatment.

The different chapters represent papers presented by the authors at the meeting of the American Psychopathological Association. There is considerable difference of approach so that some chapters contain a general discussion of principles whereas other chapters take up more individual cases and show why failures occurred in particular cases.

The chapters roam all the way from Chapter 2 which is "Failures with Psychoanalytic Therapy"; Chapter 6, "Failures in the Psychotherapy of Children"; Chapter 7, "Failures in Psychosomatic Case Treatments"; Chapter 8, "Group Psychotherapy"; Chapter 10, "Failures with Insulin Shock Therapy"; Chapter 11, "Failures with Electric Shock Therapy"; and passing on to such subjects as prefrontal lobotomy, neurosyphilis, epilepsy, and even social case work. The different chapters vary somewhat in their value, but all of them are well written and are good discussions of the subject.

* * *

HANDBOOK OF MATERIA MEDICA, TOXICOLOGY, AND PHARMACOLOGY, For Students and Practitioners of Medicine. By Forrest Ramon Davison, B.A., M.Sc., Ph.D., M.B., Consultant and Toxicologist, Minneapolis, Minnesota. Fourth Edition. The C. V. Mosby Company, St. Louis, 1949. $8.50.

This handbook, originally published in 1940, has been revised, in part, to meet criticisms levelled against earlier editions. The title indicates the fact that the text is "dated," and in Part I, perhaps, the subject matter is of greater interest to the pharmacist than to the practicing physician. Part II is, in essence, a facsimile after the Cushny style, with respect to classification of subject matter. Unfortunately, critical judgment of old, as well as new drugs, of help to the physician, is lacking. For this reason, the handbook is really a compendium of practically all agents which at one time or another have been considered useful. Certainly, many of the drugs given space in the text are superseded today by others of proven value. The size and price of the book are not justified on the basis of the subject matter selected and the manner of its presentation.

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ESSENTIALS OF PUBLIC HEALTH. By William P. Shepard, B.S., M.D., M.A., with the collaboration of Charles Edward Smith, M.D., D.P.H.; Rodney Rau Beard, M.D., M.P.H.; Leon Benedict Reynolds, A.B., Sc.D., with a foreword by Ray Lyman Wilbur, M.D., LL.D., Sc.D., Chancellor, Stanford University; Ex-Secretary of the Interior; formerly President of Stanford University, J. P. Lippincott Company, Philadelphia, 1948. $5.00.

This book of 600 pages is conveniently arranged in compact handbook form and liberally indexed and documented.

Intended primarily for the general practitioner of medicine, it should nevertheless serve equally for the medical student and also should find a place as a useful reference work for the professional in public health and preventive medicine. Because it covers extensive subject matter condensation has been necessary and with it comes the possible risk of misinterpretation of detail particularly where such detail deals with difficult or controversial subject matter. However, each chapter is thoroughly documented with bibliographical references that will aid the student of any particular subject discussed in pursuing his reading further.

The book starts with a splendid background orientation in the general objectives and philosophies of traditional public health function and the administrative structure usually encountered in public health activities. Unusual in a book of this kind is the authors' treatment of administrative responsibility in which they present a well considered picture of the role, both immediate and future, of the various official and voluntary agencies that are active in the health field. The concise manner in which this has been done in the presentation of each major area of public health activity makes this information particularly accessible at the points in the book where it is most useful.

Particularly useful to busy practitioners are a number of innovations such as the quick reference tables concerning many elusive facts such as communicable diseases regulations in Chapter IV, the submission of laboratory specimens and their interpretation in Chapter V, and the long list of diseases responsive to immunization of one kind or another in Chapter VI.

The authors' frequent references to the evaluation of specific public health activities based on the interpretation of the survey schedules of the American Public Health Association are interesting but subject to some misinterpretation. This use of such health practice indices can be considered valid only in relation to the forward motion of the particular service in question. For example, the high percentage of obstetric cases that must be hospitalized to be classified as "good" in this analytical array of services from good, fair, to poor, represents a considerable level of perfection. On the other hand, the assignment of 12 per cent as the community level considered "good" for the vaccination against smallpox of infants under one year, though it may compare favorably with the rate for the nation as a whole, can, by no stretch of the imagination, be considered really good in terms of preventive medical practice. Care, therefore, should be used in applying these somewhat arbitrary grade classifications to public health practice in a given community.

It is particularly pleasant to find the concluding chapter dealing with statistics as applied in the determination and measurement of morbidity and mortality data. This section is planned for the orientation of the general practitioner to biostatistical methods in order to enable him better to evaluate these procedures.

In short, this book will be a most useful addition to the library of the practicing physician and the student of preventive medicine and public health.

* * *

A METHOD OF ANATOMY, DESCRIPTIVE AND DEDUCTIVE. By J. C. Boileau Grant, M.C., M.B., Ch.B., F.R.C.S. (Edin.), Professor of Anatomy, University of Toronto, Fourth Edition, The Williams and Wilkins Co., Baltimore, Md., 1948. $7.00.

This is an excellent work on anatomy written primarily for the physician or surgeon seeking useful information in the field which can be immediately applied to clinical or surgical problems. It presents anatomy not as a mere conglomeration of impractical facts which must be memorized and retained, but as a functional integration of anatomical facts correlated admirably with embryology, function, and clinical interrelationships. The human body is considered by regions, and the key to the region is the predominant clinical feature or surgical feature of the area. The development of the text centers around the clinical or surgical implications, and the utility of the anatomy is immediately grasped from this method of exposition. The text is well illustrated with line drawings and diagrams which clearly depict the interrelationships of the various structures in the area.

This is a particularly readable and handy reference book for the surgeon. It is not so cumbersome or detailed as Callendar's text and yet presents anatomy in a much more practical manner. It surpasses McGregor's book in the same field by its ease of presentation and superior drawings. This book makes anatomy rational, direct, and applicable to the problems of medicine and surgery. The reviewer recommends it wholeheartedly.

SYMPTOMS IN DIAGNOSIS. By Jonathan Campbell Meakins, C.B.E., M.D., D.Sc., LL.D., formerly Professor of Medicine and Director of the Department of Medicine, McGill University. Illustrated. The Williams and Wilkins Company, Baltimore, 1948. $7.50.

This is a concise, usable book written from the clinical point of view. It is not encyclopedic, but can serve well as a reference book because of its practical character. It emphasizes the too frequently overlooked fact that symptomatology may be of greater importance in the investigation of the average case than physical examination or laboratory findings.

There are inevitable drawbacks to a text limited to the extent that this one is: Interpretations of certain symptoms are developed to the exclusion of others equally important; elaborations of the etiology or treatment of one cause of a symptom leave room for only brief mention of other causes. On the whole, Dr. Meakins has shown good judgment in his choice of subjects to be emphasized. His discussions are good. His style, while occasionally oracular, is conversational and interesting. It is surprising and regrettable that it is also frequently and confusingly ungrammatical. The number of misspelled words seems unusually high.

There are four chapters—about two-fifths of the book—which have been written by collaborators. The work of these authors is written in less interesting but more grammatical fashion.

In spite of the criticism, this is a much better than average book. It is well indexed; the information included is medically accurate; the illustrations are well selected. It can be recommended for the reference shelf of the student or intern as well as for the office of the practitioner.

* * *

OFFICE MANUAL FOR THE MEDICAL SECRETARY. By Evangeline Markwick, Ph.D., Instructor in Secretarial and Medical Secretarial Studies, Green Mt. Jr. College, Poultney, Vt.; Agnes Erickson, M.A., Instructor in Secretarial and Medical Secretarial Studies, Colby Jr. College, New London, N. H.; M. Herbert Freeman, Ph.D., Head of Business Education Dept., New Jersey State Teachers College, Paterson, N. J. Gregg Publishing Co., New York, N. Y., 1947. $2.40.

This book offers a practical solution for many problems of the medical secretary and the girl who is training for this work.

The duties of the clerk, stenographer, receptionist, and laboratory assistant are comprehensively enumerated. The Hippocratic Oath, and the Code of Medical Ethics are given. The necessary financial activities and legal responsibilities are listed. Helpful suggestions are offered for office housekeeping, filing, accounting, editorial assisting, and correspondence.

Four reference sections include: Specialties and Journals, Report on Findings of Research on Duties of Medical Secretaries, Correct Usage for the Medical Secretary, Medical Ethics.

The style of writing of the book is interesting, and the subject matter is comprehensive enough for the book to be used for general reference. In addition, a bibliography is given for technical references.

The information given is of great value because it offers specific, real facts. The authors also trace the development of accepted methods and techniques.

* * *

PRIMARY ANATOMY. By H. A. Cates, M.B., Professor of Anatomy, University of Toronto. The Williams and Wilkins Company, Baltimore, Maryland, 1948. $6.00.

This is a very short book of fundamental anatomy written primarily for nursing students or students of elementary anatomy in the colleges. It would be of little or no value to a physician or practicing surgeon. This text was written specifically for the students in the ancillary fields of medicine, notably nursing, physiotherapy, and physical education, and presents in a clear and concise fashion anatomy at this level. In this regard it is an excellent work, but would not appeal to physicians because of its utmost simplicity and lack of detailed information essential for clinical utility.

* * *

AN INTRODUCTION TO CARDIOLOGY. By Geoffrey Bourne, M.D., Physician, and Physician in Charge of the Cardiological Department, St. Bartholomew's Hospital. The Williams and Wilkins Company, Baltimore, Md., 1949. $4.50.

This textbook of cardiology has several excellent chapters which reflect an extensive clinical experience. There are several opinions expressed, however, with which many American physicians might disagree. The half page of emphasis placed upon the technique of using Southey's tubes and acupuncture in the elimination of edema, in relation to the several lines given to the use of a low sodium diet, would seem out of proportion to their importance. The acceptance of total thyroidectomy for the treatment of chronic congestive failure and angina pectoris is at variance with the reviewer's experience. Most American cardiologists have discarded this procedure. Several suggestions in treatment are unacceptable. Digitalis is advocated for ventricular paroxysmal tachycardia, a procedure which is generally regarded not only as not beneficial, but usually as hazardous.

There is a delightful discussion, however, upon the clinical forms of angina pectoris and its mimicry by innocent left submammary pain in Chapters XXIX and XXX. This is quite in keeping with the peculiar ability which the good English physician seems to possess in the lucid description of disease.

This book is recommended more because of its individually interesting chapters than because of its value as an up-to-date manual of cardiology for the practicing physician.

* * *

CARE OF THE SURGICAL PATIENT — Including Pathologic Physiology and Principles of Diagnosis and Treatment. By Jacob Fine, M.D., Surgeon-in-Chief, Beth Israel Hospital, Professor of Surgery, Harvard Medical School. W. B. Saunders Company, Philadelphia, 1949. 8.00.

The book, as its preface indicates, is intended to serve as a ready guide for the over-all care of the surgical patient.

The author has elected to divide the contents into six chapters. The first chapter, entitled "General Considerations," includes useful hints in surgical diagnosis, fluid and electrolyte balance, nutrition, hemorrhage, shock and surgical infections. The second chapter: "Regional and Special Surgery," covers surgical care of specific areas. This chapter covers not only every phase of abdominal and chest surgery but also important points in the care of neurosurgical, orthopedic and otolaryngological patients. The third chapter: "Endocrine Disease and Hormone Therapy," contains excellent coverage of each gland of internal secretion. The fourth chapter: "Coincidental Medical Illnesses in Surgical Patients," covers the anemias, cardiac disease, diabetes, skin disorders and renal disorders. The fifth chapter is devoted to clinical laboratory methods and the last chapter on "General Preoperative and Postoperative Care." There are 40 illustrations.

This book is not intended to cover surgical technique. Reference to technique is made whenever it reflects upon postoperative care. The book is written in an informal, easily understandable manner. It can be well recommended not only for use by the surgeons and surgical residents, but also by the general practitioner and the internist with whom, after all, the burden of pre- and postoperative care is shared by the surgeon.

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Carcinoma of the Thoracic Esophagus

A Discussion of Early Diagnosis and Surgical Treatment

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SUMMARY

Dysphagia, substernal or epigastric distress, and regurgitation of food are important early symptoms in the diagnosis of carcinoma of the esophagus. Temporary remission in symptoms does not rule out esophageal cancer. The use of thick barium meal and routine thorough examination of the esophagus in upright and supine positions in all *upper gastrointestinal roentgen studies, even though the clinical symptoms point to the upper abdomen, are of great importance.*

The spread of the cancer to both mediastinal and subdiaphragmatic lymph nodes makes transthoracic thoracolaparotomy the one approach which will permit the surgeon to perform a one-stage esophagogastrostomy, and to adequately evaluate and deal with cancerous tissue on both sides of the diaphragm. This one-stage procedure permits the patient to swallow normally after operation, and the costly and time-consuming uncertainties of the many-staged operations are avoided. The comfort which the operation gives to otherwise doomed patients, along with the improving postoperative mortality rate, offers new hope to those who have cancer of the esophagus.

OF all malignant disease, carcinoma of the esophagus is one of the most distressing to the patient because it produces progressive obstruction and slow starvation. This tumor comprises from 5 per cent to 10 per cent of all malignancies in males[13, 14] and is surpassed in frequency only by carcinoma of the stomach, lung, and rectum.[7] The past decade in this country has seen the first successful resection of the lower esophagus with esophagogastrostomy by Adams and Phemister[3] in 1938, and of upper thoracic carcinoma by Garlock[10] and Sweet[15] in 1944.

Despite these great surgical advances the number of operable cases seen by surgeons remains relatively small. In 1946 and 1947 the authors found only 30 per cent of cases of carcinoma of the esophagus treated by them to be operable. Other reports in the literature vary from 16 per cent of all cases[1] to 46 per cent of explored cases.[11] The explanation for the small number of resectable cases probably lies in delay in making the diagnosis rather than early metastasis, since it has been estimated that only 10 per cent of patients with esophageal cancer have definite metastasis when first examined by the physician.[2, 12] The late reference of these patients to the surgeon is explained partly by a fairly common medical belief, voiced in the literature as recently as 1945,[4] that carcinoma of the esophagus is not amenable to resection. Since these tumors are now subject to successful surgical treatment, the measures leading to an early diagnosis are of prime importance. It is the purpose of this communication, therefore, to discuss the early diagnosis and surgical management of carcinoma of the esophagus based on a study of cases observed and certain reports in the medical literature.

SYMPTOMS AND SIGNS

In the majority of cases of carcinoma of the esophagus, it is possible to make the diagnosis soon enough to permit surgical extirpation. Certain few

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cases, however, defy early diagnosis. Dysphagia is by far the most important symptom. It was present in all of a series of 30 patients treated in 1946 and 1947, and in 96 per cent of Farrell's series of 100.[8] In that series it occurred as the initial symptom in 71 instances. Physicians and laity alike should consider dysphagia as important as the finding of a lump in the breast, hemoptysis or other warning signs of early malignancy. Dysphagia may not necessarily be progressive; periods of remission may occur when the patient swallows better. This factor lulls both the patient and the physician into a false security that malignant disease is not present, and the diagnosis then may be "nervous stomach" or "cardiospasm." In six of the cases observed by the authors the fact that the dysphagia was not progressive resulted in delay in making the correct diagnosis.

Belladonna preparations should not be used until a definite diagnosis is made, since these drugs may decrease the smooth muscle spasm often present early with a tumor. In two cases in the authors' series, muscle spasm was relieved by belladonna so that the patients swallowed more easily and did not return to see their physician until some months later. It is possible also that simple necrosis of the tumor or the subsidence of the edema and swelling of a secondary esophagitis may also lessen the dysphagia. Although these explanations do not completely account for the surprising remissions of obstructive symptoms, the fact remains that remissions do occur. Unfortunately the esophageal obstruction may be severe and still not produce great dysphagia, for the effective diameter of the esophagus may be only 4 to 5 mm. and still permit the swallowing of solid foods with the help of a quantity of liquids.

Loss of weight, usually a prominent symptom, varied from a few pounds to 50 pounds in the series here reported, with an average loss of about 20 pounds. There is a corresponding lowering of the serum proteins and anemia of a secondary type. Great loss of weight may not mean extensive metastasis of the tumor as it usually does in connection with malignant disease elsewhere in the body.

Actual regurgitation of food was present in over half the cases in the authors' series and in 65 per cent of Farrell's cases.[8] This important symptom may be readily distinguished from true vomiting by the facts that with regurgitation of food there is no nausea, retching, nor bitter taste of gastric juice, and the regurgitated food is undigested.

In over half of the cases in the series here reported a slight feeling of distress, distention, or even pain on swallowing, was felt beneath the sternum or in the epigastrium. Distress of that kind is caused by the actual stretching of the esophagus and resultant hyperperistalsis. Because the distress is often felt by the patient below the xyphoid process, the clinician is erroneously led to believe that the pathological condition is in the stomach. One must be careful to distinguish this distress on swallowing from the continuous severe boring pain in the interscapular region of the back, which, when associated with fever, invariably means extensive spread to the mediastinal structures and inoperability. The occur-

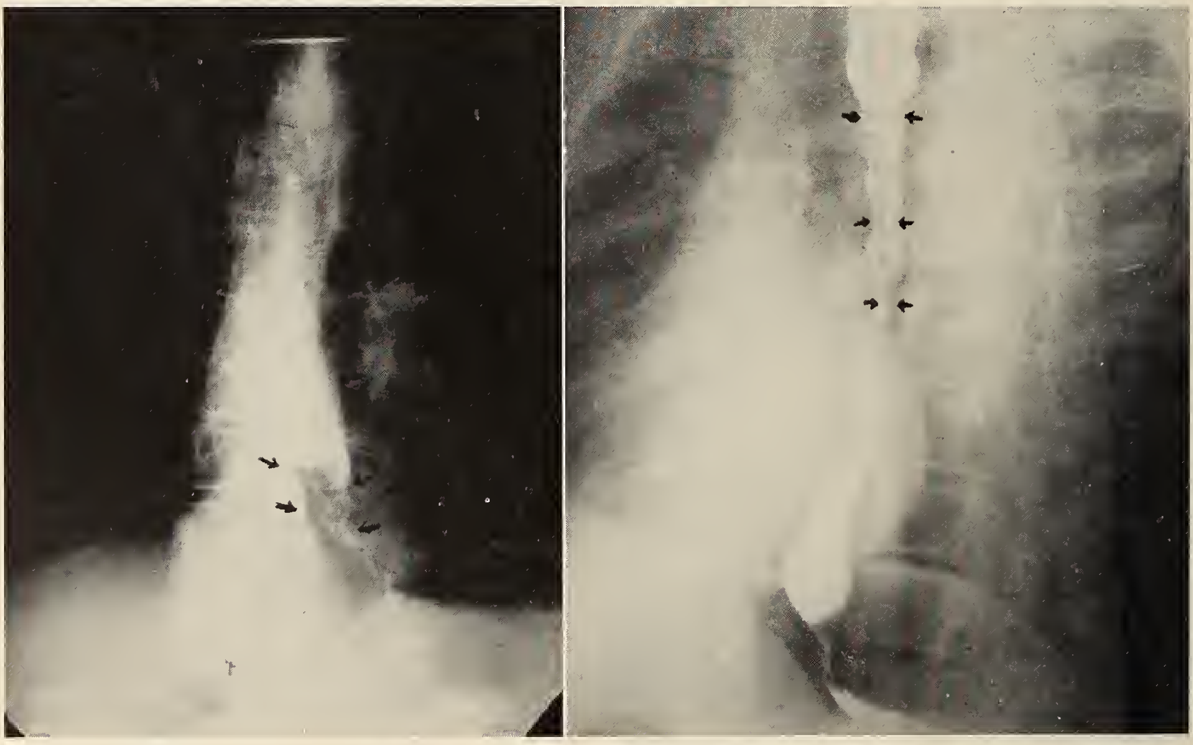

Figure 1.—Typical barium studies of cases of carcinoma of the esophagus (resected surgically). *Left*—Irregular filling defect of lower esophagus. *Right*—Irregular filling defect of upper esophagus.

rence of cough should be carefully investigated. In three of the cases in the series cough occurred immediately after ingestion of food, and was proven to be evidence of bronchial or tracheal involvement. It is interesting that chronic pneumonitis commonly seen in cases of cardiospasm from the aspiration of regurgitated food is rare in carcinoma of the esophagus. One patient with a long history of esophageal obstruction had pneumonitis of that order.

Physical findings show the results of progressive inanition and dehydration and are essentially those of a slow starvation. No other abnormal physical signs are elicited during the stage when the tumor is resectable. Other abnormal findings, which usually mean inoperability, will be discussed later under the consideration of the selection of patients for operation.

ROENTGENOGRAPHIC FINDINGS

The roentgenographic findings produced by the ingestion of thick barium meal usually reveal the signs pathognomonic of esophageal carcinoma. This examination is probably the most important one in determining the diagnosis and extent of the disease. The roentgenographic diagnosis depends upon changes produced by the tumor in contour, position and time of movement of the barium.[8, 9] These abnormalities involve more than one side of the tube when the growth is in the long axis or constrict the entire lumen when the growth is circumferential. It is usually possible to demonstrate some irregularity in contour of the lumen at the site of constriction by performing the fluoroscopic examination in the upright and supine positions. Some dilatation of the esophagus may be seen proximal to the obstruction, if it has been present for a long enough time. Figure 1 shows characteristic lesions. A real problem revolves around the fact that the physician asks for a roentgenological study of the stomach, expecting carcinoma of this organ, with little or no attention paid to the thoracic esophagus, the actual site of the growth. In over one-third of the cases in the authors' series, examination of the stomach was requested by the clinician as the first roentgenological study of the patient. Ofter very thin barium meal is used and supine examination omitted, so that an early lesion may be entirely missed. In Figure 2 (*left*) is seen an example of a case in which the main interest was in the stomach, so that the x-ray marker partially obscured the pathologic change high in the esophagus. The true diagnosis was finally determined two months later in this case, when an esophageal study was made (Figure 2 [*right*]).

The confusion of carcinoma of the esophagus with "esophagospasm" represents another serious problem in roentgen diagnosis. Figure 3 (*left*) illustrates a case in which the diagnosis of "spasm" of the esophagus resulted in a six-month delay in detection of the carcinoma. Figure 3 (*right*) shows the similarity to a proven case of benign spasm. Persistent

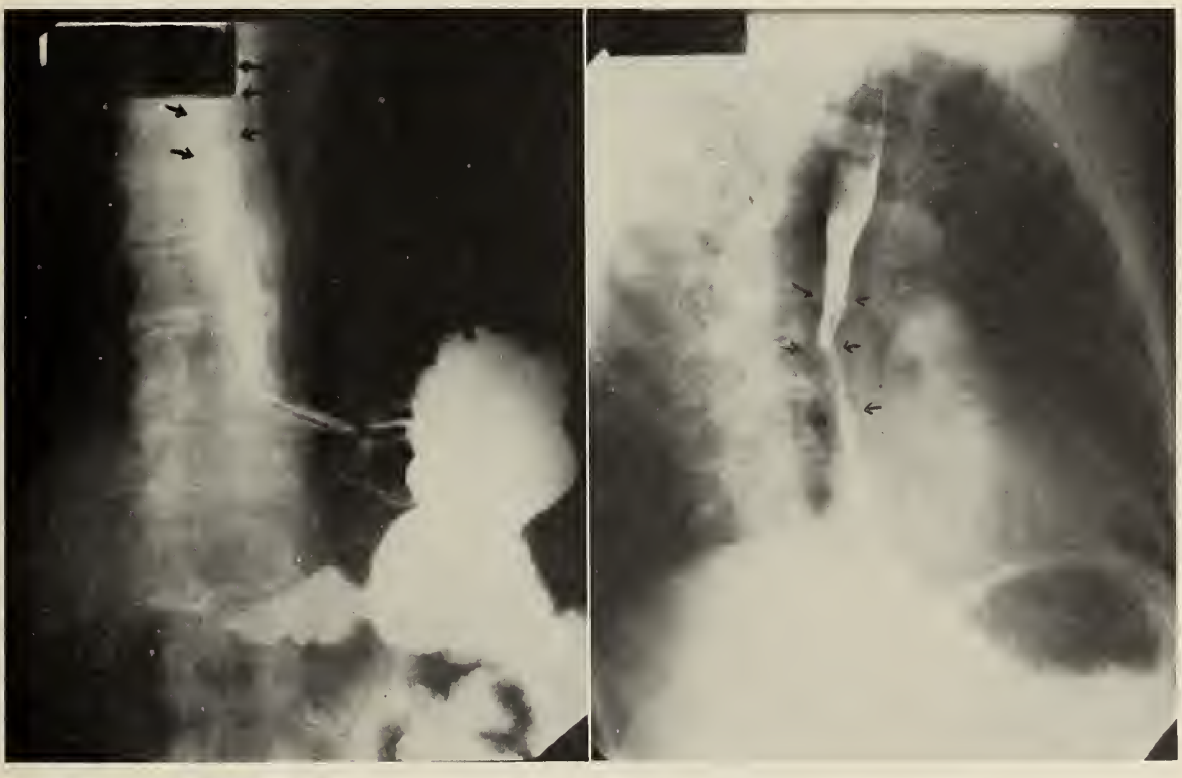

Figure 2.—*Left*—Routine upper gastrointestinal series, with cancer of the stomach suspected. Marker partially obscured esophageal lesion and "normal esophagus" was reported. *Right*—Film two months later demonstrates carcinoma of the esophagus.

dysphagia due to benign tumors of esophagus or benign strictures may simulate carcinoma of the esophagus, particularly if mucosal ulceration is present. However, one must remember that carcinoma may develop in cases of "cardiospasm" and benign stricture after a long period of time.[6] Figure 4 (*left*) represents an obstructive lesion of the esophagus proven to be a benign stricture, while the obstruction shown in Figure 4 (*right*) was shown to be a benign tumor. Both of these lesions were successfully resected by a one-stage transthoracic procedure. Extra-esophageal masses may also simulate an intrinsic growth.[9] Diverticula and varices only rarely result in roentgenological findings that may cause them to be confused with primary esophageal carcinoma.

ESOPHAGOSCOPY

Esophagoscopy is the next important diagnostic aid in determining the presence of a primary esophageal carcinoma. The tumor may be studied under direct vision, a biopsy taken, and the amount of fixation of the esophagus noted. A rigidly fixed esophageal wall usually means direct extension of the tumor into the extra-esophageal tissues, although, if there is periesophagitis, this finding is not absolute. The external appearance of the lesion is so characteristic that the experienced endoscopist usually can make the diagnosis by gross examination alone.

With adequate sedation and gentleness of manipulation of the instruments, esophagoscopy may be performed on the average patient without undue discomfort. In addition to local anesthesia and preoperative barbiturate and atropine, the injection of 50 to 100 mgm. of Demerol intravenously produces considerable relaxation and greatly lessens the discomfort to the patient. If the patient is unduly apprehensive, general anesthesia (ether or pentothal and curare) can be safely used; and the diagnosis of carcinoma will not then be overlooked.

INDICATIONS FOR SURGICAL EXPLORATION

Patients with carcinoma of the esophagus who are seen by surgeons are most often starved old men. Loss of weight, so indicative of extensive spread of cancer in other parts of the body, must not be interpreted as a sign of inoperability of esophageal carcinoma, provided the nutritional deficiencies can be corrected. Age itself is not a contraindication to operation, as patients in their 70's and 80's have had successful esophageal resections. All patients with carcinoma in the region of the aortic arch should be examined with a bronchoscope to determine involvement of the bronchus or trachea with the esophageal carcinoma. Spread to the lungs, although not common, when shown by a roentgenogram of the chest, is a contraindication to operation. Similarly, involvement of the mediastinum, as determined by roentgen films showing gross enlargement of the mediastinal lymph nodes, or as evidenced by persistent fever over 100° F. when accompanied by a boring interscapular pain, should be regarded as contraindication to operation. Hoarseness due to

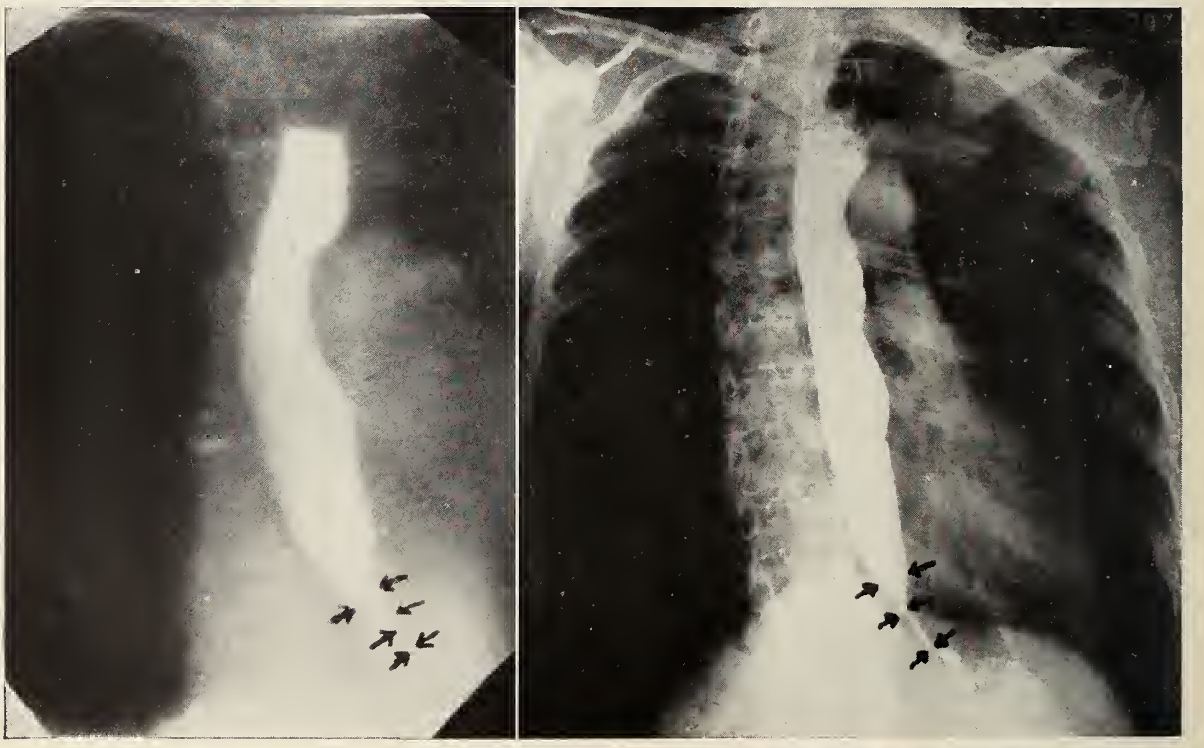

Figure 3.—*Left*—Carcinoma of the esophagus simulating benign spasm. There was six months' delay in making diagnosis because of neglect to perform esophagoscopy. *Right*—Similarity of x-ray findings seen in this proven case of benign spasm of the esophagus.

recurrent laryngeal paralysis similarly indicates mediastinal extension of the tumor. Palpable cervical lymph nodes, enlarged liver, evidence of involvement of the peritoneum and other signs of distant metastasis also contraindicate surgical exploration.

SURGICAL TREATMENT

A detailed account of the surgical technique employed by the authors has been presented in a previous report.[5] The reader is further referred to the earlier writings of Adams and Phemister,[3] Garlock,[10] and Sweet,[15] who have made the great surgical contributions to the present-day treatment of this disease in this country. In the authors' view, transthoracic thoracolaparotomy, in which the stomach is brought up through the incised diaphragm into the pleural cavity to replace the resected esophagus, is the surgical procedure of choice.[5] At one operation the local and lymphatic spread of the cancer both in the thorax and upper abdomen can be exposed, the resectability determined, the cancer excised, and the anastomosis of the stomach and esophagus performed. The success of the operation depends on adequate preparation of the patient, careful surgical technique, intratracheal anesthesia, prevention of operative shock by blood replacement, and diligent postoperative care to prevent or treat postoperative pulmonary complications.

RESULTS OF OPERATION

No patients are more grateful following operation than these starved, elderly persons with cancer of the esophagus, who find that they can swallow normally after a one-stage operation. Actually the presence of the stomach in the thoracic cavity, because it causes only slight compression of the left lung, produces little if any discomfort. Figure 5 shows the postoperative x-ray film in a case in which the stomach was brought up to the upper part of the chest to replace the cancer-bearing esophagus. X-ray therapy, thus far, has not offered such relief. The authors have not encountered postoperative strictures at the site of the anastomosis. The food passes readily into the stomach. Delayed emptying of the stomach occasionally occurs, but is most often a temporary complication. In the 30 cases treated in 1946 and 1947 the cancer was located just below or above the arch of the aorta in 22 instances, and in eight cases in the region of the diaphragm. Explorations were done in 23 cases; one patient for whom operation was considered advisable refused to permit it. In 14 instances among the 23 cases in which operation was done, the tumor could not be removed; resection was carried out in the remaining nine cases. There were two postoperative deaths. The patients were males, aged 65 and 69 years, with arteriosclerotic heart disease in which bilateral pleural effusion, pulmonary edema, partial atelectasis and auricular fibrillation caused death. Other observers report mortality rates from 16 per cent[15] to 44 per cent.[1] The higher mortality was reported in an earlier period when penicillin and streptomycin were not available. With improvements in surgical management, even lower mortality rates may be anticipated. Survival time after operation varied in

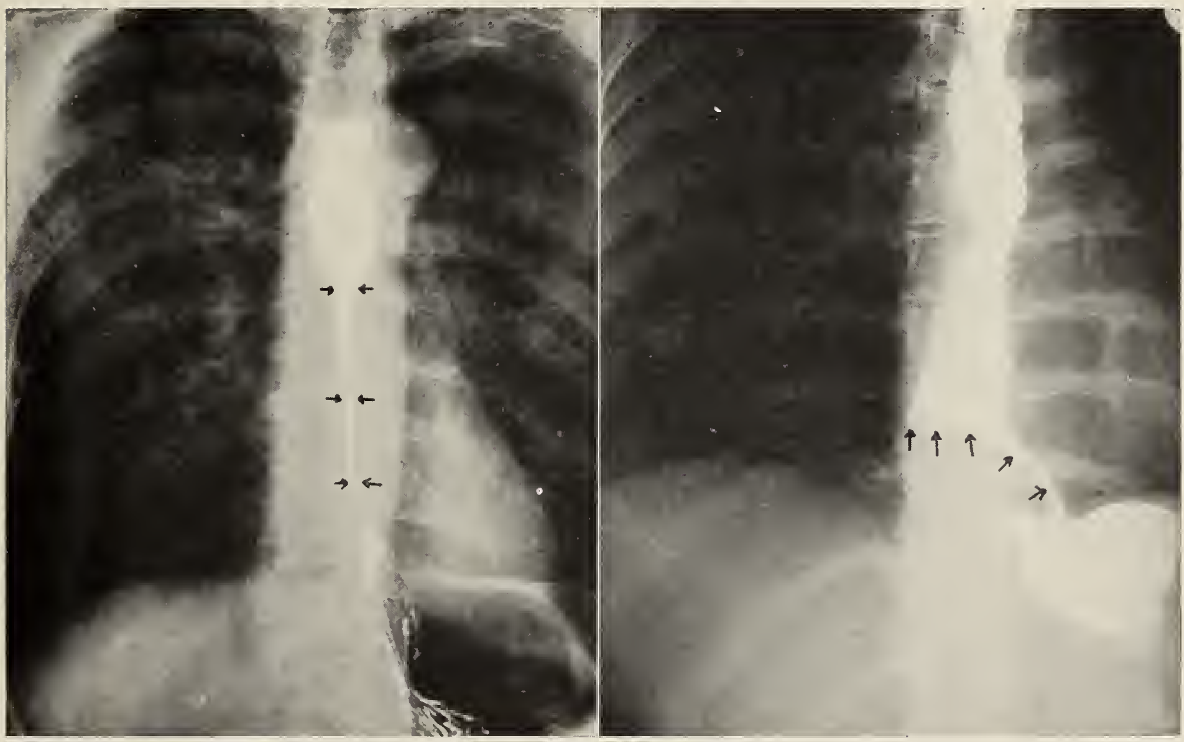

Figure 4.—*Left*—Benign stricture of esophagus showing regular concentric funnel-like narrowing of the esophageal lumen. *Right*—Benign leiomyoma of esophagus with smooth shelf-like obstruction of the esophageal lumen.

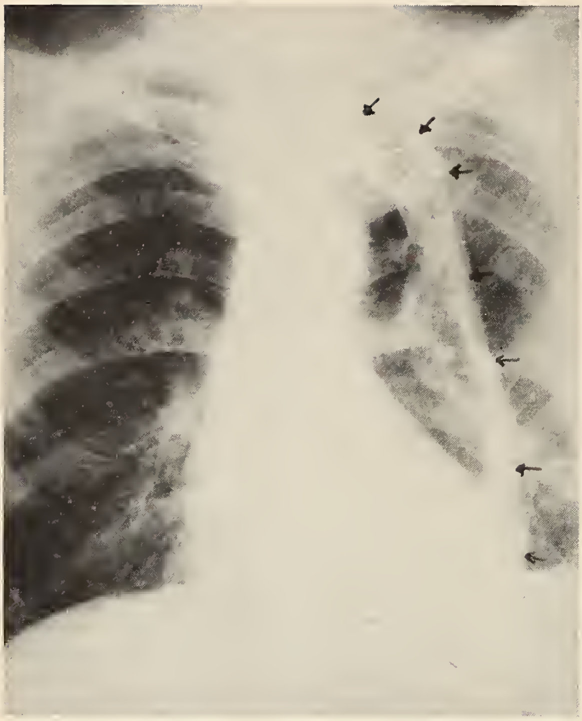

Figure 5.—Postoperative film showing esophagogastrostomy with the stomach anastomosed to the upper thoracic esophagus at the thoracic inlet.

the authors' series from six to 20 months; in other series it has ranged up to seven and a half years.[15]

DISCUSSION

Since carcinoma of the esophagus is accessible for early diagnosis, there is a challenge to every physician to make this diagnosis in time for complete extirpation of the lesion. Failure to make an early diagnosis of carcinoma of the esophagus is most often based on two common mistakes: (1) Neglecting to make a careful examination of the esophagus by x-ray because the epigastric symptoms are thought to be caused by gastric pathological changes; and (2) making a clinical diagnosis of esophageal "spasm" because there are remissions of the symptoms. In performing the roentgenological examination, a thick barium meal must be employed and the esophagus viewed in at least three planes, in the supine as well as the upright positions, to bring out any irregularity of the wall. Unfortunately, in the performance of "an upper gastrointestinal series" a thorough examination of the esophagus is often tragically omitted. Only when careful roentgen studies of the esophagus are made an integral part of all "upper gastrointestinal series" will early esophageal cancers be diagnosed.

In referring patients with carcinoma of the esophagus to a surgeon, the physician must not be deterred by the poor general condition of the patient secondary to pronounced loss of weight. One of the great advances of the past decade has been the emphasis upon restoring protein, vitamin and glucose and water deficiencies before submitting the patient to operation. Thus, even "the starved old men" may be made successful candidates for operation. Proper anesthetic management, blood replacement during operation and the performance of a meticulous anastomosis contribute greatly to the success of the operation. Prophylaxis with antibiotics and care to avoid and control postoperative intrathoracic complications will further insure a satisfactory postoperative result. The success of the operation to a large extent depends on the prevention and the skillful management of the postoperative pulmonary complications. Supravoltage x-ray therapy may increase the survival period when used following radical removal of the cancer.

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Anoxia and the Convulsive State

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SUMMARY

The author believes he has clinical and experimental evidence to suggest that one of the underlying causes of idiopathic epilepsy lies in lack of sufficient oxygenation of the cerebrum before or during birth.

REVIEW of the records of patients referred to the author because of convulsions disclosed that in a considerable number of cases there was history of abnormality in the mother during pregnancy or of difficulty with delivery. Accounts of bleeding, placenta praevia and profound narcosis for delivery were rather frequent. Curiosity as to whether such episodes might be just as frequent in instances in which convulsions had not appeared in the child led to the study here reported.

The literature revealed that others already had given thought to the question of relationship between difficulty in birth and convulsions in the child—one investigator some 80 years previously. Little, in 1862, had this to say:

"The object of this communication is to show that the act of birth does occasionally imprint upon the nervous and muscular systems of the nascent infantile organism very serious and peculiar evils. When we investigate the evils in question, and their causative influences, we find that the same laws of pathology apply to diseases incidental to the act of birth as to those which originate before and after birth."

The surprising thing is that Little stated that he believed that the mechanism at work was not direct trauma to the infant as it traveled through the birth canal but that it involved the "interchange of blood" between mother and fetus. He went on to state that he had observed that in cases in which the infant lived following premature birth, difficult labor, or mechanical injuries to head and neck during parturition, convulsions followed the act of birth and were liable to be succeeded by a determinate affection of the limbs of the child. And this, of course, is the basis for Little's Disease.

It is surprising that between 1862 and the last decade the possibility of "faulty interchange" was explored very little and apparently little thought was given to the question. During this time there were many papers on birth injuries as conventionally thought of—that is, in terms of damage to the cranium, petechial hemorrhages in the central nervous system, subdural hemorrhage, or laceration of the surface veins or of the intracranial venous sinuses—but there was not much on the possible effects of anoxia. Instead, there was a good deal of work on methods of resuscitation of asphyxiated infants.

It was not until the last decade that a publication by Schreiber of Detroit served to reawaken interest in the clinical aspects of anoxia suffered during fetal life and at birth. He reported on almost 500 cases of infants and children who showed neurological defects, and found that in the majority there was history of difficult birth. Less than a year later Cole and his co-workers in Detroit published the results of a study based on 5,000 deliveries and aimed at investigation of asphyxia of the newborn. These investigators appear to have established the following:

1. *Prematurity* is the greatest factor in asphyxia.
2. *Trauma* is an important factor.
3. *Narcosis* and *general anesthesia*—in whatever amount used—definitely are prejudicial to the infant's respiration.

It appears from this study that the safest birth from the point of view of asphyxia of the newborn is that in which no sedative, analgesic or anesthetic is used.

Irving, Berman and Nelson, studying apnea of the newborn, found that apnea was least when no anesthetic was used. They progressed through a list of drugs and combinations of drugs until they got to a combination of Pantopon R and scopolamine. When this combination was employed, 67 per cent of infants were apneic at birth.

Faber was chiefly interested in cerebral atrophy, although in his series of cases half the patients had convulsions. He applied Barcroft's outline of anoxia to the conditions causing anoxia in the fetus and newborn infant. He reiterated four points that applied to anoxia and damage to the nervous system, from whatever source the anoxia might proceed: (1) The earliest and most disastrous effect of oxygen deprivation is exerted on the central nervous system, particularly the cerebral cortex and basal ganglia. (2) Complete anoxia causes death of the affected nerve cells in three to ten minutes. [The author believes the cells may die in even shorter periods of anoxia.] (3) The lower centers being less susceptible, the infant may survive months or years with irreparable damage to the cortex. (4) The effect of repeated exposures to anoxia is cumulative. [The author does not believe this has been proven as regards humans.]

Clifford, in 1940, showed that in placenta praevia with pronounced hemorrhage the infant mortality rate is very high. Moreover, the infants who died after several days showed changes in the brain compatible with the state produced by anoxia.

Although it does not apply directly, mention should be made of the important work of Courville,

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who several years ago published a monograph on the subject of nitrous oxide anesthesia. His neurological material included a number of cases in which the infants died, had paralyses of various sorts, or immediate or delayed convulsions. The important thing to remember is that nitrous oxide, administered by an inexperienced person, may be a very dangerous agent. Its deleterious effects, however, are due solely to anoxia—not to any especial property of the gas. In this respect it operates as do other simple asphyxiants such as helium, nitrogen, methane, and carbon monoxide. In the past ten years a number of investigators have made studies based on the researches of Haldane, Barcroft, Henderson, Peters and van Slyke. Barcroft's classification of anoxia has become widely accepted.

Some of those who in the past decade have studied the effects of anoxia experimentally are Yant and his co-workers, Himwich, Windle and Becker, and Kabat and Yaskin. Largely out of their work the following generalizations have been drawn:

The central nervous system demands a lot of oxygen. The cerebrum has a more active metabolism than any other organ in the body and the rate of irrigation of the brain is tremendous. At the same time, neurological tissue is more sensitive to oxygen lack than any other tissue in the body. Further, there is an unfortunate gradient: The gray matter of the cerebrum and cerebellum demands, as Yaskin pointed out, the most oxygen; the white matter of the cerebrum and cerebellum demands less; and the spinal cord least of all. This agrees with the tabulations Drinker made of survival time under conditions of anoxia of various portions of the central nervous system. Drinker noted that, when deprived of oxygen, tissues of the central nervous system survived as follows: cerebrum, small pyramidal cells, 8 minutes; cerebellum, Purkinje's cells, 13 minutes; medullary centers, 20 to 30 minutes; spinal cord, 45 to 60 minutes; sympathetic ganglia, 60 minutes; myenteric plexus, 180 minutes. There is rather rough confirmation of this gradation in the very careful work of Yant and others who carried out studies on pathologic changes produced by anoxia in dogs. Various changes such as chromatolysis, distortion of nuclei, vascular stasis, vacuolization and fragmentation of the cells and perineural edema tended to be most pronounced at the highest level — the cortex, thalamus and corpus striatum. In the brain stem and cord, and at lower levels, the changes tended to be less extensive.

At the most sensitive level, serious effects may follow oxygen deprivation for as short a period as 90 seconds; death of the cell may occur in anywhere from three minutes upward. In this connection, as has been pointed out elsewhere, the period of seconds or of minutes during which the obstetrician sees the newborn child as exhibiting good color, crying lustily, breathing at once, does not furnish a basis for a decision that the child is normal. It must be recalled that interruptions of the supply of oxygen, even for a short period, at any time during the entire period of gestation, may produce lasting damage that may not be apparent at once.

So much for the important clinical and laboratory studies of the last ten years. It will be noted that none of the investigators studied the correlation between anoxia and the later development of convulsions.

Beginning such a study, the author scanned his own records of patients suffering from the convulsive state. The history in every one of these cases was taken by the author. It might also be mentioned that the patients come from the lower middle class and are a pretty uniform group.

All cases in which the history of pregnancy and birth was inadequate were discarded. In many such instances nothing was known or recalled about the birth history. Also discarded were those cases in which there was some other possible explanation for the convulsive state—such as cerebral cyst, tumor, meningitis, or encephalitis. Remaining for study were 37 patients, up to 25 years of age, who would be labeled in most quarters as persons with idiopathic epilepsy.

Of the 37 patients, 12 had histories of what appeared to be normal pregnancy and delivery. In two cases there was history of mild abnormality in pregnancy or birth that may or may not have been significant, but the patients were included in the 12 with normal history in order to avoid weighting the figures in support of the thesis of this presentation. In 25 of the 37 cases, or about 66 per cent, there was what was considered a significant abnormality of pregnancy or delivery. These included: Placenta praevia, 2; significant bleeding during pregnancy, 6; significant false labor, 6; prolonged labor (48 hours or more) with evidence of asphyxia at birth, 9; toxemia of pregnancy, 2.

The question that arose was, "Are these birth histories really unusual?" To answer this, the birth records of a small control series of children in the 10 to 15 age group who never had had a convulsion were examined. These were records of patients who had been ill enough to come to the clinic or into the hospital because of some other complaint such as upper respiratory infection, rheumatic fever, a broken bone, or appendicitis. Interviews with the parents were carried out at Stanford, at the San Francisco Hospital and at the Children's Hospital. A standard questionnaire was used. Forty such cases were investigated. In only four, or 10 per cent, was there any suggestion of abnormal birth history.

Comparison showed, then, that 66 per cent of persons who would be called idiopathic epileptics were found to have abnormalities in birth histories, whereas only 10 per cent of those who had never had a convulsion were found to have unsavory birth histories. The author consulted a statistician who felt that this was a significant disparity.

In laboratory experiments pregnant bitches, whenever possible within the last week of pregnancy, were subjected for periods of 20 to 30 minutes to an atmosphere in which the oxygen content was lowered to as little as 4 per cent (Fender, Neff, Binger). Carbon dioxide was not allowed to accumulate and in all samples ran less than 1 per cent. The equilibrium of the atmosphere was controlled by the washing through of nitrogen and oxygen. The enclosure was of glass so the animal could be observed. A separate port allowed frequent sampling of the gas within the tank so that determinations could be made.

Experimental procedure: The animal was placed in the tank and nitrogen was turned on. The "clinical" condition of the animal determined what was done next, an attempt being made to keep it barely alive during the 20-30 minutes. At the end of this period the animal was returned to room air. After a short period that often included defecation, urination, inability to stand, then ataxia in walking, the animal returned to normal state if it survived.

One bitch aborted the evening of the experiment and ate her young. Twenty-three other pups born 24 to 72 hours after the experiment (most of them within the first 48 hours) died within the first few weeks following. Three survived permanently without apparent neurological involvement. Two pups, one of them in a litter of two and the other in a litter of three, developed status epilepticus at five and six weeks respectively. The first was killed after 24 hours to end its state, and the second survived for three days, having almost constant seizures. Motion pictures were made of these convulsions.

To summarize: Of the 23 pups that could be counted, 18 died rather promptly; of the five survivors, three seemed to be normal and two had convulsions.

DISCUSSION

As a generalization it may be said that something (or several things) produces a change that is either structural, chemical, or electrochemical, in the cortex or other high level of the cerebrum. This change makes it possible for something periodically to be built up or to disappear, which in turn reaches an electrochemical trigger level that fires off a convulsion.

The author proposes that anoxia is one of the agents that may produce this primary change, and that it may be one of the major causes of so-called epilepsy.

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Discussion by J. M. Nielsen, M.D., *Los Angeles*

Dr. Fender is to be congratulated on the facts and theories he has adduced. Dr. Courville and I have been interested in this subject for about 18 years. Statistical data on asphyxia are difficult to gather, because the patient cannot know, the mother rarely knows and the obstetrician seldom can remember the circumstances at birth in a given case. Therefore, since it is known that there is greater incidence of difficulty with the birth of a first child than with subsequent births, I took a new avenue of approach—a study to determine whether epilepsy is more common in the first-born than in other offspring of the same mother. It has been possible to gather excellent records of nearly one thousand suitable cases. I will not bother you with the details, but it turned out that the rate of incidence of epilepsy was twice as great in the first-born as it was among any subsequent children of the same mother. It seems to me that if we can give more attention to this factor we may be able to prevent much epilepsy.

Cesarean Section Experience at the University of California Hospital

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SUMMARY

A review of the 746 cesarean sections performed at the University of California Hospital from 1907 through 1948 shows an overall cesarean section incidence of 3.91 per cent. The maternal mortality rate associated with these cesarean sections has been 1.61 per cent. There has been a steady decline in mortality over the 40-year period and there have been no deaths from cesarean section in the last ten years. The over-all incidence of morbidity associated with cesarean section has been 40.5 per cent and again there has been a significant improvement in recent years. The fetal mortality associated with cesarean section has been 6.1 per cent. In view of recent experience, standards based on figures collected 20 years ago are no longer tenable.

STATISTICAL information accumulated over a 40-year span is of importance in that it is possible to obtain a sufficient perspective to appreciate changes that have taken place during this time. For this reason the following figures may be of interest.

Arnot,[1] in 1935, published the figures dealing with cesarean section at the University of California Hospital up to that time. His material has been reviewed and the findings brought up to date. This survey represents the complete story from 1907 through 1948 at this hospital.

On December 31, 1907, the first cesarean section was performed at the University of California Hospital on a 35-year-old primigravida. The rather sketchy information given showed an uncomplicated antenatal course. The patient had an inlet contraction with the diagonal conjugate measurement being 11 cm. The membranes ruptured prematurely seven hours before onset of uterine contractions. Shortly after uterine contractions began, the patient was hospitalized and continued in labor for 12 hours. In spite of frequent and strong contractions the infant's head did not engage and delivery by cesarean section was decided upon. The record at the time of operation is of some interest: The anesthetic agent used was chloroform followed by open drop ether. Using the umbilicus as a midpoint, a 15 cm. midline incision was made. The uterus was exposed and incised. The operative note points out that at this time the "hemorrhage was extreme" and the placenta was found lying immediately beneath the incision. The placenta was penetrated and a living child delivered without further difficulty. A hypodermic injection of "aseptic ergot" was then given and the uterus massaged and irrigated with hot saline solution to stimulate adequate contraction. The uterus was closed in three layers, the first with interrupted Pagenstecher linen sutures, the second with interrupted No. 2 chromic suture material, and the outer layer with continuous No. 2 plain catgut. The abdomen was then filled with hot normal saline solution and the peritoneum closed with a continuous catgut suture the size of which was not stated. After the fascia was closed with a continuous suture of No. 2 chromic catgut, the skin edges were brought together with interrupted silkworm gut sutures and an iodoform gauze dressing which had been soaked in bichloride solution was placed over the wound. Dr. A. B. Spaulding, who later became professor of obstetrics and gynecology at the Stanford University Medical School, was the surgeon and the operation was completed in one hour. The patient had a febrile postoperative course and was critically ill for a number of days but was discharged as well on the 32nd postoperative day.

In terms of present-day obstetrics, one could be extremely critical of obstetrical care of this type, but when one considers the problem in relation to the state of medical knowledge at the turn of the century it is impossible to have any feeling other than admiration for the judgment, ability and courage displayed at this time. This, likewise, serves as a point of departure in orienting ourselves regarding the progress that has been made in obstetrics since 1907.

INCIDENCE

A total of 746 cesarean sections have been done at the University of California Hospital through December 31, 1948. During this same period of time 19,060 patients have been delivered at this hospital. This, then, gives a cesarean section incidence of 3.91 per cent. Disregarding the year 1911 when no cesarean sections were performed, the incidence varied from a low of 0.7 per cent in 1910 to a high of 8.5 per cent in 1932. During the past ten years the incidence has fluctuated between a low of 3 per cent in 1943 and a high of 4.9 per cent in 1940. In 1948 the incidence was 4.3 per cent.

There were 311 operations performed on private patients and 435 on clinic patients. However, in all instances, the decisions concerning the clinic patients were made by members of the senior staff who, likewise, were responsible for all but a few of the private patients. Thus, there was a fairly close continuity of

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thought and care with all patients, whether clinic or private. Because of the fact that there is no large slum district in San Francisco such as one finds in metropolitan centers in the eastern part of the U. S., these patients were usually in a state of moderately good nutrition. Until very recently there has been a negligible Negro population in San Francisco and the vast majority of the patients have been Caucasians with a sprinkling of Orientals.

In addition to these 746 cesarean sections, two postmortem sections were performed. These were not included in the analysis.

MATERNAL MORTALITY

From 1907 through 1948 there have been 12 maternal deaths among the 746 patients delivered by cesarean section. Thus, the mortality rate for this period of years was 1.61 per cent. If the figures are broken down into ten-year groups one finds that from 1907 through 1918 the mortality rate was 7.3 per cent. From 1919 through 1928 the rate was 4.4 per cent. From 1929 through 1938 the rate was 1.2 per cent. There have been no maternal deaths in association with cesarean section from 1939 to the present time, in a total of 329 cesarean operations. This, then, might be taken as a fairly graphic portrayal of the advance in obstetrical care at the University of California Hospital during this 41-year period.

It is of interest to compare these results with figures from other institutions. In 1909, Green[3] published a study on the results of the first 100 cesarean sections performed in the Boston Lying-in Hospital. This represented the period from 1894 to 1907. The maternal mortality was 8 per cent. Davis[2] published the results that had been obtained in the New York Lying-in Hospital from 1893 to 1914, and the associated maternal mortality was 10.7 per cent. These figures contrast with more recent data. Irving[4] presented a detailed analysis of the experience at the Boston Lying-in Hospital for the ten-year period from 1934 to 1943. The over-all maternal mortality was 1.3 per cent, and it was interesting to note that when broken down into five-year periods the data for the period 1934 to 1939 showed a mortality rate of 1.9 per cent while from 1939 to 1943 it was 0.7 per cent. Mack and Siddall[5] compared the results obtained in the years 1925, 1930 and 1945 in the city of Detroit. The maternal mortality dropped from 13 per cent in 1925 to 4.4 per cent in 1930 and then to 0.8 per cent in 1945.

The obstetrical literature contains many similar observations and those mentioned are typical examples of the improvement over the years. Thus, it can be seen that experience at University of California Hospital has paralleled that in other parts of the country.

No single factor has been responsible for this steady improvement—rather, it can be credited to the outgrowth of knowledge dealing with such things as anesthesia, the significance of blood loss and need for transfusion therapy, as well as a greater appreciation of some of the contraindications to cesarean section. It can be pointed out, for example, that chloroform has long since been discarded as an anesthetic agent; that blood transfusions are commonly used as a prophylactic measure in modern-day operative obstetrics rather than being reserved for the moribund patient as a measure of last resort; and that experience has taught the wisdom of a more judicious appraisal of the indication for, and possible contraindications to, a cesarean section.

The over-all maternal mortality at the University of California Hospital during this same period has been three per thousand, a total of 57 maternal deaths having occurred in the 19,060 deliveries. With many of these fatalities the pregnancy was purely incidental and in no way related to the cause of death—for example, deaths caused by encephalitis, tuberculosis, pneumonia and brain tumors.

A detailed analysis of the cesarean section fatalities is presented to emphasize the improvements that have taken place in obstetrical care. Keeping in mind the years when the fatalities occurred, no reflection is intended; rather, the purpose is to point out that certain fatalities in years gone by should be preventable at this time and that no one should be proud of a current mortality rate of "only 1 per cent."

Case 1. 1913. A multipara, 37 weeks along in pregnancy with a premature separation of the placenta and profuse vaginal bleeding prior to operation. Cesarean hysterectomy was performed under chloroform and ether anesthesia. Death from bronchopneumonia occurred on the third postoperative day.

Case 2. 1916. A primipara, 36 weeks along in pregnancy, experienced an episode of profuse vaginal bleeding. Rectal examination revealed placenta praevia. A classical cesarean section was done under nitrous oxide and oxygen anesthesia. The postoperative course was markedly febrile, terminating with death from bronchopneumonia on the 24th day.

Case 3. 1916. A multipara, at term, experienced an episode of profuse painless vaginal bleeding. Placenta praevia was diagnosed. A classical cesarean section was done under nitrous oxide and ether anesthesia. Two severe hemorrhages occurred postoperatively and the patient died on the 11th day from peritonitis.

Although two of these patients died of bronchopneumonia and the third from a peritoneal infection, the cases have something in common. The indication for the operation in each instance was antepartum bleeding. In no case was a blood transfusion included as part of the therapy. Nothing points out more clearly the changes that have occurred in obstetrical care than the manner in which patients in similar circumstances are cared for at present. Hospital and community blood banks have made blood almost as easily available as normal saline solution, and it would be considered inexcusable at present to treat such patients without adequate amounts of blood on hand. This improvement, along with modern methods of anesthesia together with chemotherapeutic and antibiotic agents, should prevent deaths of this type.

CASE 4. 1920. A multipara, with a rachitic funnel pelvis, whose three previous pregnancies ended in stillbirths due to dystocia. Although the patient was not in labor, the membranes had ruptured two hours prior to operation. A classical cesarean section was done under nitrous oxide and ether anesthesia. The patient ran a "septic" temperature and death occurred on the 15th postoperative day from a probable blood stream infection.

This is another example of what would be considered a preventable death at present. It is, indeed, a rare infection that cannot be controlled with present therapeutic agents.

CASE 5. 1920. An unmarried primipara with many manifestations of a psychoneurosis. An elective cesarean section was done on the indication of "hysteria." Death occurred on the third postoperative day from a paralytic ileus and acute dilatation of the heart.

Nearly all physicians have seen patients in whom the psychological background was such that it was felt advisable to avoid traumatic labor. Psychiatric counsel along with modern analgesia might have resulted in a spontaneous delivery for this patient. Certainly, modern postoperative care has practically eliminated paralytic ileus as a cause of death and in view of the circumstances it can be said that such a death should be considered a preventable one.

CASE 6. 1921. A multipara with a contracted pelvis. Attempted vaginal delivery by means of high forceps was unsuccessful after a labor of ten hours and nine hours with ruptured membranes. This was followed by an attempt at craniotomy, during which procedure the uterus was ruptured. A cesarean hysterectomy was then performed with death from peritonitis on the fourth postoperative day.

One of the advances in obstetric knowledge has been the greater appreciation of the hazards surrounding a difficult forceps delivery. It is reasonable to consider that a similar patient might now be handled with an extraperitoneal type of section. Certainly the prognosis would be far better with this method and no doubt death could be prevented.

CASE 7. 1922. An elective cesarean section was done on a multipara who had mitral stenosis and insufficiency. The anesthetic used was nitrous oxide. Death from cardiac insufficiency ensued on the third postoperative day.

CASE 8. 1923. A primigravida with mitral and aortic valvular heart disease. A diagnosis of premature separation of the placenta was made following a small amount of vaginal bleeding. Cesarean section was done under nitrous oxide and ether anesthesia. Death from cardiac failure occurred on the eighth postoperative day.

There has been a change in the concept regarding the ability of cardiac patients to withstand labor. It is true, certainly, that far fewer patients are delivered by cesarean section on this indication, nowadays, than was the case 25 years ago. From the evidence at hand it is difficult to say whether these might be considered preventable deaths or not. It is probable that similar patients operated upon at this time would not receive an inhalation anesthetic. It is believed that local anesthesia gives a greater margin of safety.

CASE 9. 1925. A multipara with a contracted pelvis and a history of two previous stillborn infants. An elective classical cesarean section was done with nitrous oxide and ether used for anesthesia. Marked abdominal distention developed postoperatively and death from a paralytic ileus and acute dilatation of the stomach occurred on the seventh day.

No autopsy was obtained in this case but the records suggest that peritonitis played a part in the production of the ileus. Fortunately again, it is now possible to approach this problem in a much more specific manner than was the case 25 years ago, and such a death would now be considered preventable.

CASE 10. 1931. The patient had severe rheumatic heart disease, and an elective low cervical cesarean section was done under local anesthesia. The patient had a smooth postoperative course and was discharged on the 14th postoperative day. Ten days after discharge, that is, the 24th postoperative day, she suddenly died at home and an autopsy revealed an acute dilatation of the heart as the cause of death.

It is probable that this patient was allowed to return home after too short a period of time in the hospital. A cardiac consultant who is able to work closely with the obstetrician and who is aware of the problems peculiar to obstetrical patients can be of the greatest value. One cannot but wonder if the outcome might not have been different if such a consultant had been available and if the patient had been kept under observation for a longer period.

CASE 11. 1936. A multipara whose previous obstetrical history was pertinent in that her first pregnancy had been terminated by means of a cesarean section, while with her second pregnancy she had a spontaneous vaginal delivery. For this, her third pregnancy, the decision was made to deliver her again by cesarean section. She was admitted to the hospital at term in early labor and was quickly taken to the operating room where a low cervical section was performed. Blood loss at the time of operation was estimated to be 1,000 cc. No transfusions were given. The patient died four hours after operation from acute pulmonary edema and acute cardiac decompensation.

In this instance, certainly, the cause of death was primarily the hemorrhage at the time of operation. Open to serious question also are the indications upon which the operation was done. Certainly a death under these circumstances should be placed squarely on the obstetrician's shoulders and it is an avoidable one from several viewpoints.

CASE 12. 1938. The patient was a primigravida upon whom an elective low cervical section was performed because of a contracted pelvis. Aside from a low grade febrile postoperative course, there were no complications. Death occurred suddenly on the 10th postoperative day from a massive pulmonary embolus.

This unfortunate outcome is one of the constant threats in any surgical procedure. During the past five years the policy of early ambulation of all patients, including those who have had a cesarean section, has been adopted and it is believed that there has been a definite decrease in the incidence of postoperative vascular complications as a result. It must be appreciated, however, that even with early ambulation occasional patients will die of a massive embolus, and to this extent the death in this case must be considered unavoidable.

Thus, eight out of the 12 deaths should be considered preventable in the light of modern obstetrics. Three of the remaining four patients—the three who died because of cardiac disease—might conceivably have survived had their care been comparable to that now given to cardiac patients. It should be emphasized that among these 12 fatal cases there was but one patient who received a blood transfusion. This is in direct contrast to present-day figures at University of California Hospital: 28 per cent of the patients are given transfusions during cesarean operation and 35 per cent receive transfusions postoperatively, the vast majority of the transfusions being entirely prophylactic in nature.

MATERNAL MORBIDITY

An analysis of the incidence of morbidity has been carried out and it is noted that of the 746 patients who had cesarean section, 302 had a morbid postoperative course, an incidence of 40.5 per cent. This is based on a febrile response to 38 C. on any two days excluding the first 24 hours postpartum. It may be pointed out that the majority of these patients experienced a rapid return to normal and that the febrile reactions were of minor significance. Among 311 private patients the incidence was 32 per cent and among 435 clinic patients it was 45 per cent. This is a significant disparity and may be the result of the difference in experience of the surgeons. In examining the yearly incidence of morbidity two definite periods of improvement are apparent. In the early years most of the patients had a morbid course; in fact, through 1930 the annual incidence was usually above 60 per cent. During the thirties a drop occurred with most of the years having shown an incidence in the neighborhood of 40 per cent. Beginning with 1943 another significant decline occurred, the annual figures since that time having been in the neighborhood of 20 per cent. During the year 1947 a low of 11.4 per cent was reached. The reasons for this very real decline are not too apparent. Prophylactic chemotherapy and antibiotic therapy have been used infrequently. The general policy has been to reserve these agents for the management of specific infections as they arise, and certainly the infrequent prophylactic use of them is not sufficient to account for this improvement. It is probable that the reduction reflects the more widespread use of whole blood transfusions and improvements in anesthesia over the years.

FETAL MORTALITY

There have been 46 infant deaths associated with the 746 cesarean sections. This represents an uncorrected infant mortality of 6.1 per cent. The causes of death have been many: prematurity, congenital abnormalities, intra-uterine asphyxia associated with placental separation, and, in recent years, erythroblastosis have all played a part.

In an attempt to answer the question as to what might be the minimal fetal mortality associated with cesarean section, 284 cases were selected in which an elective section was done solely because of a prior section. These did not include any cases in which coincidental toxemia or a bleeding complication might have been a factor in the fetal outcome. In this group there were four fetal deaths, an incidence of 1.58 per cent. Three of these deaths were accounted for on the basis of prematurity alone; the infants weighed, respectively, 1,670 gm., 1,980 gm., and 2,290 gm. In the fourth case an unexpected complete fresh rupture of the uterus was found, with the infant and the placenta in the abdominal cavity at the time of operation.

Thus it appears that even with the elimination of all maternal factors, fetal deaths can be expected from time to time because of faulty judgment as to the size and development of the infant.

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The Application and Evaluation of Peritoneoscopy

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SUMMARY

Peritoneoscopic examination has now been accepted throughout the world as a safe diagnostic procedure in lieu of laparotomy in selected cases.

Laparotomies for diagnostic purposes alone should be condemned.

Peritoneoscopy should not be done without a definite purpose and the procedure should not be expected to accomplish more than the purpose for which it is done. Indications for the procedure are set forth in detail. Experience has established definite contraindications, which are reviewed.

The procedure is especially indicated for patients who are aged, emaciated, anemic, or poor surgical risks for any reason.

All patients having ascites of undetermined cause should be examined by peritoneoscopy.

The method is especially indicated for examination of patients with liver disease of all types, for pelvic examinations, for use to determine existence of ectopic pregnancy, and for tumor localization.

Considerable use was made of the procedure during World War II to determine the extent and site of intra-abdominal injuries caused by crushing, explosions, and falls from high places.

The procedure permits early and correct diagnosis, early decision as to the advisability of operation, and determination as to operability in cases of malignant gastric lesions. It is a safe method for obtaining biopsy specimens from intra-abdominal tissue and organs.

Accuracy of diagnosis in cases in which the method can be used is considerably greater with peritoneoscopic examination than with clinical information alone.

PERITONEOSCOPIC examination is a means of visualizing the peritoneal cavity with an optical instrument. The instrument used is such as to permit the removal of biopsy specimens of tumors or tissues suspected of being diseased. Now a definitely established diagnostic procedure, peritoneoscopic viewing has been accepted generally as another endoscopic method of examining body cavities. It is used to obtain augmentative information when clinical, laboratory and roentgenographic findings are not sufficiently clear-cut for a positive diagnosis.

Although it is the procedure of choice for intra-abdominal examinations in many circumstances, peritoneoscopy cannot wholly supplant laparotomy for this purpose, not only because its usefulness is limited to the visually accessible regions of the peritoneal cavity but also because in some conditions the procedure is definitely contraindicated. Within the limits of its usefulness, however, it offers a valuable extension of the internist's armamentarium while avoiding the greater risks and difficulties of the alternative exploratory laparotomy.

VALUE OF METHOD

The value of peritoneoscopy lies in the ease of its application and the differential diagnostic information obtained through this safe, direct, eye-controlled method of examination. Through use of the procedure it is often possible to make a diagnosis in a questionable case correctly and without delay, to decide early the advisability of operation upon a patient showing grave disease, and to differentiate tumor masses from various organs in the peritoneal cavity. It offers a simple way of determining operability in cases of malignant gastric lesions. Because it is a far less formidable procedure than exploratory laparotomy for diagnostic purposes, it is particularly useful for patients who are elderly, emaciated, anemic, or for other reasons poor surgical risks. Moreover, the cost is relatively low.

USES OF PERITONEOSCOPIC EXAMINATION

The indications for peritoneoscopic examination are identical to the purposes for which it is done. These may be listed as follows:

1. Differential diagnosis.
2. Determination if metastases are present.
3. Corroboration of diagnosis.
4. Differentiation and localization of tumor masses.
5. Biopsy.
6. Pelvic examinations.
7. To drain abscesses or cysts and guide exploratory needling.
8. To determine sex (when external genitalia are not distinctive).
9. To determine operability of a lesion.
10. To determine extent of intra-abdominal injuries.

Unfortunately, many of the diagnostic methods that are in use today for making intra-abdominal diagnoses permit only vague and presumptive conclusions.

It is true that, by means of x-ray, a diagnosis may be made of intragastric lesions or lesions that affect the continuity and contour of the gastrointestinal tract. The roentgenologist often can say whether a tumor is extragastric or intragastric, and in most cases he can indicate the probability of malignancy of the lesion. In such cases peritoneoscopic examination is a valuable aid in determining operability and prognosis.

In cases of ascites the internist, by correlation of the findings and examination of the fluid, can make only a presumptive diagnosis of cirrhosis, malignant growth, tuberculosis or other causes. All patients having ascites of undetermined origin should be given the benefit of peritoneoscopic examination. Ascitic fluid may be withdrawn through the instrument, the peritoneal cavity may be visualized immediately after withdrawal, and biopsy specimens may be taken from any lesion found. The procedure may be curative in cases of ascites caused by tuberculous peritonitis, since the air is left in the abdominal cavity following examination.

Tumor masses are often encountered in the abdominal cavity, and a question arises as to whether they are cysts, abnormal lobes of the liver, retroperitoneal tumors, or malignant growths. Examination by peritoneoscopy can supply the answer.

Mental disorientation, albuminuria, hypertension, cardiac decompensation, diabetes, unconsciousness, or deep jaundice are not contraindications for peritoneoscopic examination. It is assumed that care will be exercised in all cases regarding the preoperative medication given.

There are many instances in which negative findings are valuable to the clinician. Hence, applying the method to an apparently normal abdomen often is justified.

The procedure is especially indicated in all types of liver diseases, in pelvic examinations, in determining ectopic pregnancies, and for purposes of tumor localization.

At times it is helpful in determining the sex of a child if the external genitalia are not distinctive. This becomes important to the parents with regard to a name and the future of the child as a girl or boy.

Following explosions, crushing injuries, or falls from high places, peritoneoscopic examination may be a life-saving measure in determining the nature and site of intra-abdominal injuries. Usually the patient is unconscious, with multiple fractures of bones, and early differentiation of hemoperitoneum from ruptured liver, spleen, or bowel may be of vital importance. There was considerable use of the procedure for this purpose during the recent war.

SELECTION OF CASES AND CONTRAINDICATIONS

Because there are physical limits to its usefulness plus a number of very definite contraindications for the procedure, all patients considered for peritoneoscopic examination should be carefully previewed by the peritoneoscopist and the procedure proscribed if it entails risk to the patient or if the purpose for which its use is intended is anatomically impossible of accomplishment. As lesions inside a viscus or those which are buried deep in the peritoneal cavity cannot be visualized, patients having symptoms localizing the disease in these locations should not be selected. Nor can the duodenum, the common bile duct, the pancreas or kidneys be visualized. Peritoneoscopic examination should not be undertaken as an aid in diagnosis of gastric lesions until a thorough roentgen study has been made, and then only to obtain a biopsy specimen or to determine the extent of the lesion or the presence of metastases. Although the kidneys cannot be viewed, tumors of the kidney often appear as retroperitoneal masses in the abdominal cavity and as such are visible through the peritoneoscope. This is likewise true of pancreatic and omental cysts.

Acute abdominal conditions, obstructive lesions in the large or small bowel, and dilatation of the stomach are all definite contraindications to the procedure, as are operative scars on the abdomen, history of chronic tuberculous peritonitis, and infectious dermatitis of the abdominal wall. The procedure is technically difficult if the patient is obese.

In chronic illness, peritoneoscopic examination should not be done until the usual clinical and laboratory methods for making a diagnosis are exhausted.

INSTRUMENTS AND TECHNIQUE

An instrument which has been developed for peritoneoscopic examination consists of six parts and is known as the Ruddock peritoneoscope.

1. Sheath.
2. Bistoury-tipped obturator.
3. Telescope (14 inches) made to fit air-tight into sheath.
4. Biopsy forceps with special telescope.
5. Fluid evacuator.
6. Pneumoperitoneum needle, and a special Rehfuss tube with an electric light at the tip.

The procedure is carried out in an operating room with strict aseptic technique. The patient is placed on an easily adjustable operating table and draped as is customary for laparotomy.

A local anesthetic is used, and any point in the abdominal wall may be selected for puncture, although the one usually chosen is approximately one inch below the umbilicus in the mid-line. The point of entry must be as far distant from operative scars as practicable.

After local anesthetization, the pneumoperitoneum needle is inserted and the abdomen tightly distended with ordinary unfiltered air pumped in with a baumanometer bulb. The trocar is then inserted, the bistoury-tipped obturator is replaced by the telescope, and the contents of the abdominal cavity are visualized and examined. It is important to keep the cavity distended with air during the entire procedure in order to insure good visualization. If fluid is present it must be removed before visualization is attempted.

Sensitive areas are not encountered in the abdominal cavity during examination, except for the undersurface of the diaphragm and the parietal peritoneum. Since movement of the instrument causes

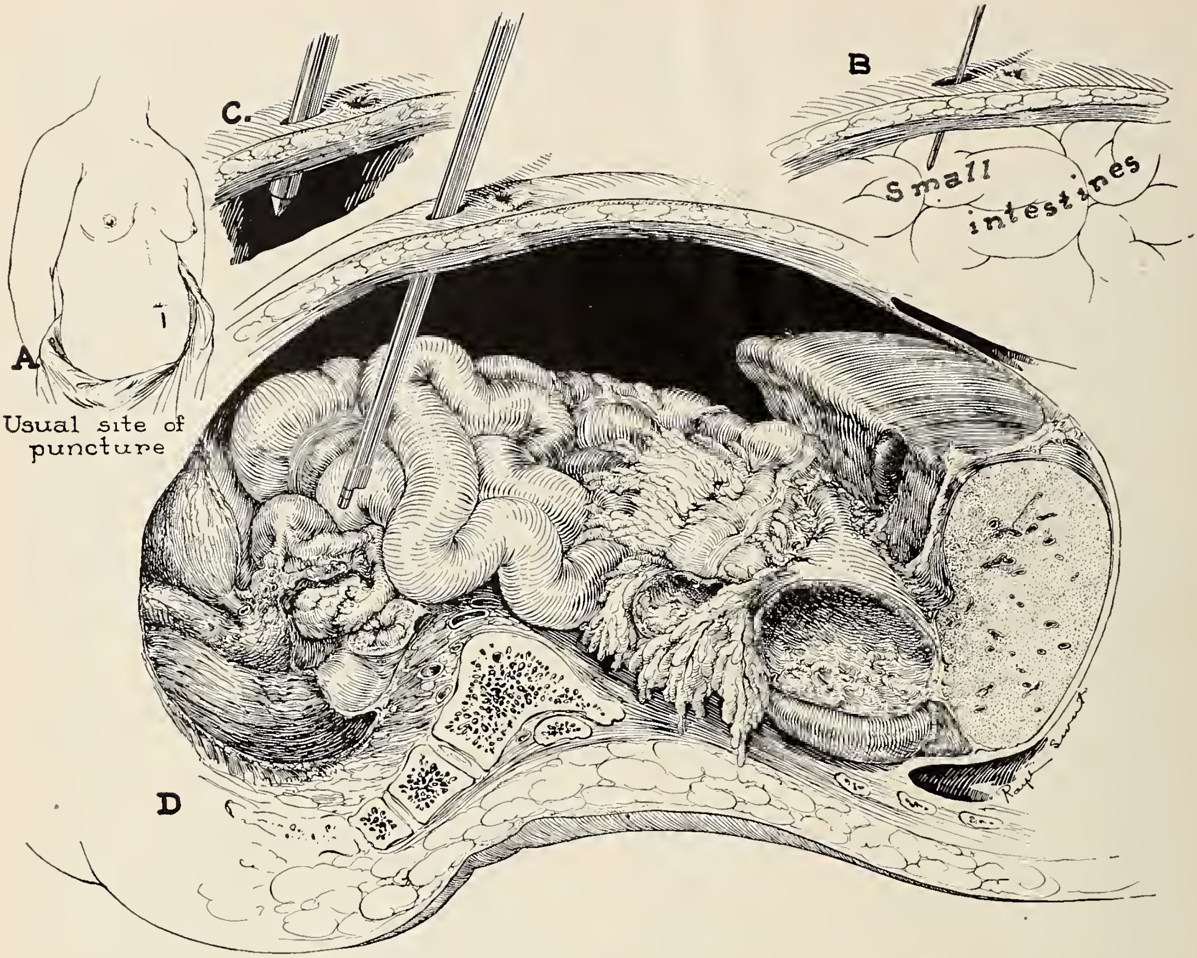

Figure 1

no discomfort if these areas are avoided, the entire abdominal cavity can be explored with a single puncture. Distention with air is not unpleasant, the patients often saying only that they "feel full." Aside from localized subcutaneous emphysema in the abdominal wall at the site of the puncture, and occasionally emphysema of the omentum, no untoward effects have been noted following distention of the abdominal cavity with air. As air makes a perfect visualizing medium, there is no distortion or aberration and objects appear in their natural proportions and color. The lens has a universal focus and the field of vision is in direct ratio to the distance from the object.

As the procedure is technical, the operator must train himself in the details of the method and familiarize himself with the instrument and its use. He should be able not only to recognize and differentiate the macroscopic appearance of normal and diseased tissues, but in addition should be familiar with the anatomical and topographical relationships of the organs within the peritoneal cavity.

The peritoneoscopist should make an examination with a fixed plan in mind which is varied only in relation to the purpose of examination. A general complete examination of the abdominal cavity, with recognition of organs and landmarks, should be done first. Minute examination of any abnormalities noted then may be undertaken. Biopsy specimens may be taken from organs or tumor growths.

Generally the causes of failure in peritoneoscopic examination are:

1. Lack of basic knowledge of anatomy, pathology, and physiology.
2. Improper technique of examination.
3. Incorrect interpretation.
4. Incomplete examinations.
5. Lack of familiarity with instrument.
6. Poor selection of cases.

VISUAL EXAMINATION

The macroscopic appearance of living tissue is quite distinctive and differs considerably from the appearance in the cadaver. Peristalsis, pulsating vessels, movement of the diaphragm, and living tissue may be viewed. With the patient in a horizontal position, the operator has a full view of all the organs in their normal relationship within the peritoneal cavity. The liver, after air insufflation, falls away from the diaphragm and can be examined in regard to size, shape, color, movements, and nodules. The edges can be followed and the gallbladder noted under the edge of the right lobe. If the spleen is enlarged, it can be seen. The omentum can be moved with the tip of the instrument so that the coiled intestines can be seen. By changing the position of the patient, and manipulating organs by pressure through the abdominal wall or through the vagina and rectum, the operator can bring all the pelvic organs and the appendix into view. Transillumination of the abdominal wall reveals dilated blood vessels as often seen in cases of cirrhosis.

The value of the procedure can be enhanced in some cases by combining it with gastroscopic and proctoscopic examinations. Both examinations may be conducted simultaneously so that each operator may see the transillumination from the light of the other. In some cases valuable information may be gleaned from this procedure.

EXAMINATION OF INFANTS AND CHILDREN

When peritoneoscopy is applied to infants and children, the same instruments are used, and the same procedure and technique are followed, with the following exceptions:

1. General anesthesia is necessary.
2. The puncture is always made through the belly of the rectus muscle in order to avoid the possibility of producing hernia.

Transillumination of the abdomen of the infant is particularly striking and the abdominal organs are easily visible because the omentum is small or completely absent. There are three purposes for peritoneoscopic examination of infants: (1) For differential diagnosis and determination of liver disease; (2) for determination of sex, and (3) biopsy.

BIOPSIES

Since the high-frequency current makes it possible to cut, coagulate tissue and induce hemostasis, biopsy specimens can be safely obtained through the peritoneoscope sheath. A parrot-beaked rongeur forceps with a special telescope which keeps the forceps under continuous vision has been devised for taking specimens from organs and tissue within the abdominal cavity. The tip of the biopsy forceps is so arranged that, when closed, it forms a cup containing the tissue material. This tip is connected with the high-frequency current and acts as an electrode for coagulating the wound resulting from excising the biopsy specimen. The biopsy material is not affected by the coagulation current.

Biopsy specimens are not taken directly from the tissues of a hollow viscus or from any part of the abdominal cavity in which there is hazard of perforation, but specimens are easily obtained from solid masses such as malignant growths or from solid organs. Biopsy specimens from the spleen

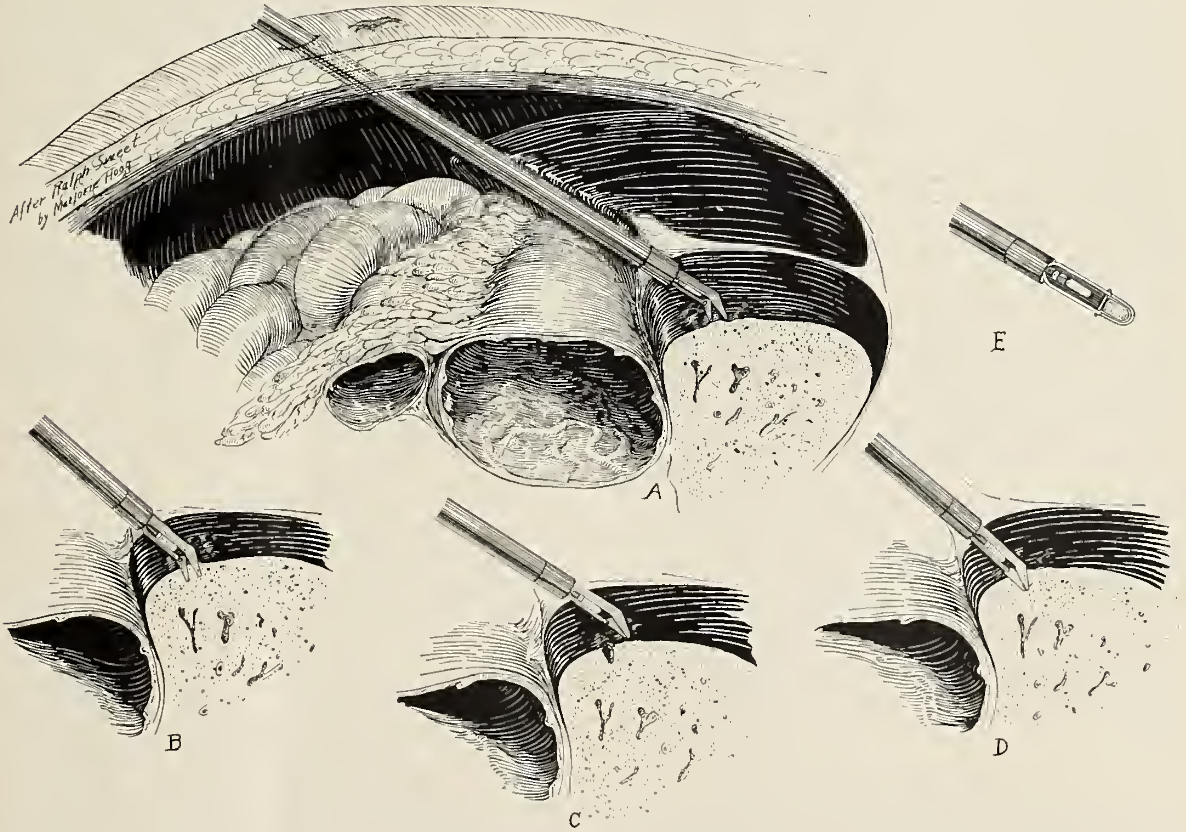

Figure 2

rarely give information of value and, because of the hazard of hemorrhage, should not be taken.

Figure 2 graphically explains the technique which is followed in obtaining biopsy specimens from the liver.

There are three methods in use for obtaining biopsy specimens from the liver, namely, laparotomy, peritoneoscopically directed biopsy, and needle biopsy. Selection of method should be governed by the nature of the case in which it is to be used.

Laparotomy is not justified if an adequate sampling of liver tissue can be obtained by either peritoneoscopic or needle biopsy, although occasionally it is the only method that will serve.

Because peritoneoscopic examination is not painful, it is not difficult to induce a patient to permit a second or third examination if that is necessary to follow the progress of intrahepatic disease. Once the liver has been visualized, needle biopsies may be used as follow-ups.

Seldom in the author's series of 2,500 cases was there failure to visualize metastatic nodules involving the liver, and this should be weighed against the difficulty of hitting single metastatic nodules by needle puncture without visualization.

Since the needling is done for the purpose of probing for deep abscesses or to obtain tissue deep below the surface, it is the author's opinion that, unless contraindicated, a peritoneoscopic examination should be done in all cases when a biopsy specimen of liver tissue is desired. By this means the macroscopic appearance — color, size, induration, and presence of nodules—may be noted, and, if needling is desired, the point of the needle may be guided under vision. It is only when diffuse intrahepatic disease is present that needling, unless visually guided, will give an adequate sample of liver tissue. Such conditions as hepar lobatum, polycystic disease, metastatic implants, perihepatitis, and hemangiomas may fail of diagnosis with needling alone; and, when angiomas are present, needling may be hazardous.

Volwiler and Jones noted that in a series of 174 cases, in which needle biopsies alone were done, there were two deaths, one from hemorrhage and the other from peritonitis. They observed also that the record of this method in determining diagnosis of portal cirrhosis, infectious hepatitis (both acute and chronic), and chronic passive congestion was spotty. However, in the author's own experience in 2,500 examinations by peritoneoscopic methods, there has been only one death directly due to the procedure. It occurred very early in this series and was due to uncontrollable hemorrhage from a sarcomatous nodule. Moreover, the accuracy of diagnosis made with biopsy and visualization, in the cases in which there was low accomplishment of purpose with needle biopsies, has been 95 to 97 per cent.

OPERABILITY OF GASTRIC CANCER

Early diagnosis is essential to a reduction in the high mortality rate of cancer of the stomach. By the time the patient presents a classic picture of gastric tumor, not much hope is left. Clinical methods, and particularly roentgenologic studies, are diagnostically accurate in approximately 95 per cent of cases, but decision as to operability in cases of gastric carcinoma is frequently difficult. Often exploratory laparotomies are undertaken to settle the question. However, it is found that in these explorations to determine operability of gastric carcinoma, the operative mortality rate is approximately 6 per cent, and it is further found that in only 25 per cent of those cases in which operation is performed is the lesion operable.

Decision as to operability becomes difficult when no metastases are demonstrable in the skin, glands, lungs, or bones. Because only the interior of the stomach may be visualized with the gastroscope, that instrument is of no help in such cases. When a gastroscopist states that a lesion is inoperable, he must assume that it has extended or metastasized widely. No safe, easy method for taking a biopsy specimen within the stomach has yet been devised.

There are three factors that help in determining the operability of gastric cancer:

1. Metastases in the liver.
2. Extension to adjacent tissues and peritoneum.
3. Extent of the stomach involved.

These questions can be answered in a high percentage of cases by means of peritoneoscopic examination. The liver as well as the omentum and peritoneal surfaces can be examined for metastases. Often the malignant lesion in the stomach wall can be visualized and adjacent tissues examined for extension. By inflating the stomach, one may note that unaffected stomach wall dilates, whereas malignant infiltration causes it to be non-elastic and leathery. Peristaltic waves can be followed to the lesion, and the stomach wall may be transilluminated by means of an electric light on the end of a Rehfuss tube. (The surgeon should always be present at a peritoneoscopic examination done for the purpose of determining operability of a gastric lesion.) There are a few cases of gastric cancer in which the only extension and metastases are found in retroperitoneal nodes. In these cases all methods fail except laparotomy.

When the question of operability in a case of gastric cancer must be settled, peritoneoscopic examination should always be done first even when laparotomy must follow. The often expressed view that this procedure is unnecessary prior to laparotomy is, in the author's opinion, erroneous. Indeed a laparotomy is extremely unfortunate if it discloses metastatic lesions in the liver and elsewhere within the abdominal cavity which could have been visualized simply with the peritoneoscope. Palliative operations are distinctly unfortunate in such cases. In the author's experience, patients in whom gastric cancer has been established as inoperable by peritoneoscopic examination are more comfortable in the short period of life which remains than are those whose condition has been determined by laparotomy.

COMPLICATIONS AND ACCIDENTS

Puncture of a viscus is a complication that may confront anyone attempting peritoneoscopic examination. Ordinarily the intestines will recede or slip aside before the trocar, and a viscus is punctured only when it is firmly fixed by adhesions or is tensely dilated. Such punctures have occurred eight times in the author's series of 2,500 cases, all within the first 900 of the total number. Such an occurrence can be avoided by (1) careful examination of the patient before attempting the procedure; (2) selection of a point of puncture to avoid all operative abdominal scars; (3) using bistoury plungers with dull tips; (4) perfection of technique; (5) making sure the stomach and the bladder are empty and collapsed at the time of examination.

Minor complications have occurred a number of times, such as hematoma at the site of the puncture, bleeding from the puncture wound, and subcutaneous emphysema. Hernias have not occurred.

If the patient is kept flat in bed and not allowed to sit or to raise his head for 24 hours following the procedure, no shoulder pains will occur. No cases of air embolism have been noted. In one patient with congenital absence of a portion of the diaphragm, pronounced emphysema of the neck resulted.

There have been no cases of peritonitis resulting from peritoneoscopic examination in this series, but in a few there has been minor cutaneous inflammation around the single stitch applied.

Three deaths have occurred. One, caused by hemorrhage following removal of a biopsy specimen from a sarcomatous nodule in the liver, could have been avoided by more careful observation of the patient during the eight hours following the procedure. Another occurred following an uncontrollable hemorrhage which resulted from removal of a biopsy specimen from the spleen. In this case the surgeon elected to remove the spleen and the patient died at the time of its removal. The third death occurred in these circumstances: Following peritoneoscopic examination, the abdominal puncture wound was left open to permit continuous drainage of ascitic fluid. When a tongue of omentum was found to be protruding through the wound a few hours later, the surgeon elected to do an abdominal laparotomy to replace it. The patient died of general peritonitis four days later. It is evident from the more recent data on the author's series that these hazards no longer arise.

ACCOMPLISHMENT OF PURPOSE

In considering data on the accomplishment of the purpose for which peritoneoscopy is done, careful selection of cases in the light of the previously listed

TABLE 1.—*Accomplishment of Purpose*

Purpose	Accomplished	Not Accomplished	Total Cases
Differential diagnosis	796	20	816
Determination of tumor	81	1	82
Determination of metastases	158	1	159
Corroborating diagnosis	325	5	330
To determine ectopic pregnancy	88	0	88
To determine ruptured viscus	2	0	2
To obtain a biopsy	9	0	9
For pelvic examination	5	0	5
To determine sex	2	0	2
Operative procedures	7	0	7
	1,473	27	1,500

TABLE 3.—*Types of Cases* (Series of 1,500).

Infants and children	24
Males	739
Females	813
Patients with ascites	679
Patients with jaundice	293
Biopsy specimens obtained from organs and tissues	569

The following conditions were noted and diagnosed: General carcinomatosis of the peritoneal cavity, carcinomatous nodules in the liver, carcinoma of the gallbladder, malignant melanoma of the liver with metastases to the peritoneum, hemangioma of the liver, tuberculosis of the liver, Hodgkin's disease, lymphatic leukemia, lymphatic leukemic infiltration of the liver, acute and subacute alcoholic cirrhosis, atrophic cirrhosis (Laennec's type), Banti's disease, passive congestion of the liver, dislocation of the liver, hepatoma, cysts of the liver, hepar lobatum, frosted livers, abscesses (single and multiple), biliary cirrhosis, hydrops of the gallbladder, chronic cholecystitis, pericholecystitis, lymphoma of the stomach, leiomyoma of the stomach, carcinoma of the stomach, fibroid tumors of the uterus, absence of uterus, atrophic uterus, normal pregnancies, ectopic pregnancies (ruptured), ovarian cysts, ruptured chocolate cyst of the ovary, papillary cystadenoma of the ovary with metastases, carcinoma of the ovary, hydrosalpinx, chronic tuberculous peritonitis, enlarged spleen, perisplenitis, pancreatic cysts, omental cysts, calcified lymph glands, carcinoma of the colon, carcinomatosis of the peritoneal cavity, normal appendix, retrocecal appendix, intra-abdominal hemorrhage, collateral circulation in cases of cirrhosis, eventration of diaphragm, mesenteric laceration from trauma, hernia, ruptured livers and spleens.

TABLE 2.—*Analysis of Cases in Which Purpose Was Not Accomplished*
(27 cases in a series of 1,500)

		Adhesions		Fat		
Purpose	Perforated Viscus	No Entry	No Vision	No Entry	No Vision	Emphysema
Differential diagnosis	6	8	1	3	1	1
Determination of tumor	....	....	....	1	....	....
Corroboration diagnosis	3	2	....	....	....	....
Determination of metastases	1	....	....	....	....	....
Totals	10	10	1	4	1	1

TABLE 4.—*Comparative Accuracy of Clinical and Peritoneoscopic Diagnosis*

Disease	No. Cases	Clinical Error	Peritoneoscopic Error	Clinical Accuracy	Peritoneoscopic Accuracy
Tuberculous peritonitis	51	47 %	14 %	53 %	86 %
Peritoneal metastases	129	26.3%	6.2%	73.7%	93.8%
Cirrhosis	318	26.5%	4.4%	73.5%	95.5%
Malignancy of liver	224	44.1%	6.3%	55.8%	93.7%
Ectopic pregnancy	58	50 %	None	50 %	100 %

Total clinical accuracy.....61.4%
Peritoneoscopic accuracy.....93.6%

uses of the method should again be emphasized. The procedure should be used only for a preestablished purpose; if the purpose is accomplished, then the examination is successful and justified.

In Table 1, the statistics available from 1,500 examinations show the high percentage of cases in which the purposes of the examination were accomplished. In Table 2 an analysis is made of the 2 per cent of cases in which the purposes were not accomplished.

The author has made peritoneoscopic examinations for diagnostic purposes in over 2,500 cases. The examinations were done upon patients from the diagnostic service of a large general hospital, upon patients in private practice and upon patients in military service. The age range was from six months to 85 years, and there were about as many males as females. Approximately 1,000 biopsy specimens were obtained. In about half the cases, ascites was present. One third of the patients examined were proven to have malignant lesions, either metastatic or primary. Table 3 shows other features of the cases studied.

DIAGNOSTIC ACCURACY

The compilation of statistics in order to compare the accuracy of diagnoses by clinical methods with the accuracy of peritoneoscopic diagnosis is exceedingly difficult. Comparison is especially difficult when a patient with four or five clinical diagnoses is referred for peritoneoscopic examination. One of the clinical diagnoses may be correct, the others may be wrong, and the peritoneoscopic diagnosis may be right or wrong, or all may be wrong. Careful records have been kept in an attempt to measure the accuracy of clinical diagnosis (with all ancillary methods and laboratory examinations at the clinician's service) against peritoneoscopic accuracy.

Table 4 shows the relative accuracy, thus determined, as regards the diagnosis of a few selected pathologic conditions.

1930 Wilshire Boulevard.

* * *

Methyl-bis (Beta-Chloroethyl)amine in Large Doses in the Treatment of Neoplastic Diseases

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WILBUR C. BERRY, M.D., and SAMUEL P. WISE III, M.D., *San Francisco*

SUMMARY

Sixty-seven patients with neoplastic diseases were treated with 151 courses of methyl-bis (beta-chloroethyl)amine hydrochloride (HN_2). Seventy-seven of the courses consisted of single injections of 0.2 to 0.4 mg. per kilogram of body weight, and 35 courses were given as single injections of 0.6 mg. per kilogram of body weight.

Twenty-three patients with Hodgkin's disease were treated. Remissions averaged approximately three months in 13 patients who were in good or fair general physical condition, and 1.5 months in 11 patients who were in poor or moribund condition; one of the 11 did not respond to the therapy.

Fifteen patients with lymphosarcoma were treated. Remissions averaged between one and two months in four patients who were in good or fair general physical condition. Of the remaining 11 patients, two showed no response, and the longest remission among the remaining nine was approximately 40 days.

Satisfactory remissions of one to three months were obtained in four patients with mycosis fungoides treated with single courses of 0.3 mg. per kilogram of body weight.

Serious toxic reactions were observed in six patients, four of whom died. In five of the six instances the reactions consisted of pancytopenia and hemorrhagic diathesis. All these patients were in poor general or hematologic status before therapy.

In general, large single doses of HN_2 were neither more nor less effective than the four- to six-day course usually employed with this agent. Combination of the administration of HN_2 with artificial hyperpyrexia, or with concurrent courses of pteroylglutamic conjugates, did not enhance the therapeutic effects of the agent.

THE amine mustards, chiefly methyl-bis and -tris (beta-chloroethyl) amine hydrochloride, have been in clinical use for approximately five years.[9,12] Records on over a thousand patients with neoplastic disease who have been treated with these agents have appeared in the literature.[1,3,7,9-18,20-25] The amine mustards have been reported to have definite, although temporary, arresting and palliative effects in some lymphomas, particularly Hodgkin's disease, and occasionally in some other neoplastic processes.

During the past two years, a group of patients with various neoplastic diseases have been treated with methyl-bis (beta-chloroethyl) amine hydrochloride[†] in the San Francisco area. This report summarizes the present status of this series.

The usual dose schedule for the administration of the amine mustards has been 0.1 mg. per kilogram of body weight daily for four to six days. There have been few studies reported on the use of this agent by other dosage schedules.[3] The effects of administering HN_2 in large single doses of 0.3 to 0.6 mg. per kilogram of body weight (up to 50 mg. in a single injection) have been investigated, with particular emphasis on the acute toxic effects of the drug following this method of administration. In addition, a few patients were investigated for possible enhancing effects of artificial hyperthermia and of pteroyldiglutamic and pteroyltriglutamic acids.[‡]

MATERIALS AND METHODS

The patients in this series were treated at the University of California Hospital, Letterman General Hospital, Veterans Administration Hospital, United States Marine Hospital, San Francisco City and County Hospital, and the Mount Zion Hospital, all in San Francisco; a few were treated on an outpatient basis at the Laboratory of Experimental Oncology. The diagnosis in all cases was based on the microscopic examination of at least one relevant biopsy specimen.

Methyl-bis (beta-chloroethyl) amine hydrochloride was used in all cases. In most instances a rapidly running physiological saline solution was started through an intravenous needle of 18 or 20

From the Laboratory of Experimental Oncology of the University of California Medical School and the National Cancer Institute (Bierman and Shimkin); the University of California Medical School, San Francisco (Mettier and Weaver); and Letterman General Hospital, San Francisco (Berry and Wise).

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[†] Hereinafter referred to as HN_2. Furnished by Merck Co., Rahway, N. J.

[‡] Hereinafter referred to as diopterin or teropterin, respectively. Furnished by Dr. Stanton Hardy of Lederle Pharmaceutical Corporation, Pearl River, N. Y.

gauge. The HN_2 was dissolved in saline and administered within five minutes through a 24 or 26 gauge needle introduced into the rubber tubing used in the saline infusion. The vein was flushed rapidly with at least 100 cc. of saline following the HN_2 injection.

Hyperthermia was attained by the cradle and blanket method.[6] HN_2 was administered by the method described in the preceding paragraph after the patient had been maintained for 2.5 hours at 41° C. (axillary temperature), and hyperthermia was continued for 2.5 hours following the HN_2 injection.

RESULTS

The results are presented in Tables 1 and 2. To date (July 1, 1948) 67 patients have received 151 courses of HN_2. Twenty-five courses of therapy were given by multiple doses over periods of two to 13 days, usually three to six days. The dose per administration was either 0.1 mg. per kilogram of body weight daily, or 0.05 mg. per kilogram of body weight every 12 hours. Eleven courses of HN_2, for a total dose of 0.6 mg. per kilogram of body weight, were divided into two to four doses given at regular intervals within two to 24 hours. Seventy-seven of the courses consisted of single injections of 0.2 to 0.4 mg. per kilogram of body weight. Thirty-five courses were given as single injections of 0.6 mg. per kilogram of body weight, up to 52 mg. of HN_2 in one administration during a five- to fifteen-minute period.

Four patients were given 0.2 to 0.4 mg. of the agent per kilogram of body weight during artificial pyrexia. Eight patients were given single injections of 0.6 mg. of HN_2 per kilogram of body weight while at induced axillary temperatures of approximately 41° C.

Ten patients received intramuscular injections of diopterin (50 to 100 mg. daily) or teropterin (20 to 60 mg. daily) for seven to 18 days during the HN_2 therapy.[8]

PHARMACOLOGICAL EFFECTS

Multiple electrocardiograms, pulse pressures, respiratory patterns, and blood pressure determinations were recorded simultaneously on 12 patients during and up to one hour after the administration of large single doses of HN_2. These tracings have shown no significant changes from those of the pre-treatment findings.

THROMBOPHLEBITIS

Moderate to severe thrombophlebitis in the veins into which the HN_2 was administered was encountered in ten cases. This complication may be minimized by using a 26 gauge needle to inject the HN_2 slowly into the rubber tubing. Thrombosis occurred most often when HN_2 was injected too rapidly into a slowly running infusion or when the venous circulation of the arm was impaired because of cervical or axillary masses. In general, with these precautions, the local effect of HN_2 upon the veins was not a major problem in this series of cases.

GASTROINTESTINAL EFFECTS

Nausea appeared within 30 minutes to three hours after injection of HN_2 and persisted from one hour to as long as four or five days but in most instances abated by the end of the first 24- to 36-hour period. Emesis followed within an hour after the onset of nausea, and the first one or two episodes were often projectile in type. Nausea and emesis decreased progressively in severity and incidence during the following 12 to 24 hours.

The reaction to the agent, judged by nausea, vomiting, and general exhaustion, was no more severe with the one-dose schedule than that observed in comparable dosage spread over a four- or six-day schedule. In fact, the total period of nausea, emesis, and exhaustion appeared to be less than with the longer schedule. Nausea and vomiting were of varying degree and did not appear at all in two patients receiving up to 40 mg. of HN_2 in a single injection.

Mild diarrhea which persisted for 24 to 36 hours was observed in the majority of patients treated with HN_2.

Twelve patients with various neoplastic diseases received large single doses of HN_2 while their axillary temperature was approximately 41° C. There was no immediate reaction while the drug was being injected. Nausea appeared within a few hours, but only one patient vomited during the 2.5 hours while the temperature was elevated. Emesis in general was much diminished as compared with that noted in connection with other schedules of treatment, although the nausea persisted in most cases for one to three days. However, all these patients were heavily sedated with barbiturates during the induction of the pyrexia.

CENTRAL NERVOUS SYSTEM EFFECTS

Headache, generally frontal in location and severe in a few instances, occurred frequently and persisted from one to three days following the single large-dose administration of HN_2. Four patients had transient horizontal nystagmus within a few hours after a single large injection; this nystagmus persisted for up to 36 hours and then disappeared without residual findings. One patient with Hodgkin's disease (Case 13) had severe encephalopathy of undetermined type 15 days following a single administration of 24 mg. of HN_2; this patient was severely ill for two weeks but showed excellent remission of the neoplastic disease for more than three months after recovery from this episode.

The character of the vomiting following the administration of HN_2 would suggest a central nervous system effect; however, this has remained unproved.

HEMATOPOIETIC EFFECTS

As recorded in the literature in all series of cases treated with HN_2 or other amine mustards, the larger the dose and the shorter the duration of administration of the total dose, the more abrupt and the more severe was the leukopenia which was produced. In the series here reported, definite drop in the total leukocyte count, first affecting the lymphocytic cells, was encountered in all but five patients treated with single doses of 0.3 to 0.6 mg. of HN_2 per kilogram of body weight in single administrations. Figure 1 presents data on the effect of large injections of HN_2 upon the leukocyte count in comparable patients with Hodgkin's disease. There was no significant difference between the leukopenia produced by single doses up to 0.6 mg. per kilogram of body weight and that produced by the same dose administered in daily doses of 0.1 mg.

Lower levels of leukopenia than those obtained with single large doses of the agent were seen in the cases in which hyperthermia was used as an adjunct. Diopterin and teropterin or pyridoxine had no influence on the decrease or subsequent rise in leukocytes.

Leukopenia, itself, has not been a problem in our series. Patients in whom the leukocyte count fell to 2,000 per cu. mm. or under were usually given penicillin. In a few cases penicillin was purposely withheld throughout the phase of leukopenia below 2,000 cells. No serious infections or other sequelae ascribable to leukopenia developed. In one patient treated with HN_2 and hyperthermia, however, severe herpes labialis with secondary folliculitis developed and was a serious problem for approximately one week following the nitrogen mustard therapy. Herpes labialis developed also in three other patients so treated, but in these cases the disease was easily controlled with hot packs and penicillin.

One patient (Case 55) was given 120 mg. of HN_2 within a three-week period with no pronounced change in the leukocyte count. Indeed, the small change observed after HN_2 in cases of carcinoma of the lung is noteworthy.

Pronounced effect upon the erythrocytic elements were observed in 12 cases. In these cases the erythrocyte count decreased by 500,000 or more within a month after therapy. The effect upon the erythrocyte count was less immediate than that upon the leukocyte count and usually occurred approximately two weeks following the administration of nitrogen mustard. The effect on the erythrocyte count was much more noticeable in patients with preexisting hematopoietic disease. Thus, the erythrocyte count was influenced in almost half of the cases of advanced Hodgkin's disease and other lymphomas whereas in the non-lymphoma group no effect on the erythrocyte count was observed.

A severe drop in the platelet count to under 100,000 per cu. mm. was observed in nine cases. In five

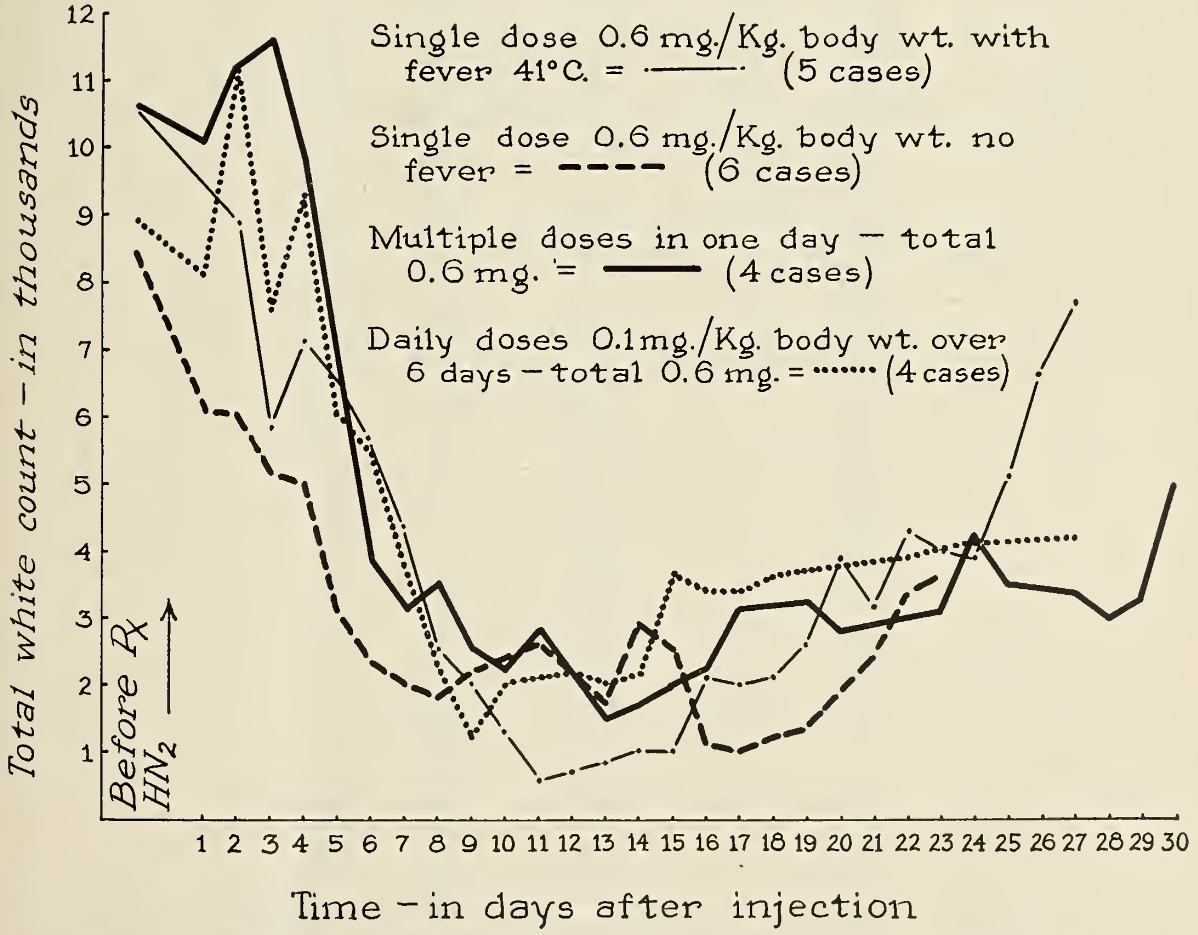

Figure 1.—Effect of Bis (beta-chloroethyl) amine HCl upon total leukocyte count in Hodgkin's disease.

TABLE 1

Case No.	Sex and Age	Duration disease (Mo.)	X-ray Therapy prior to HN_2	General condition at HN_2 therapy	HN_2 Therapy: Schedule (injections in period)	HN_2 Therapy: Total dose (Mg.)	HN_2 Therapy: Dose (Mg./Kg.)	Additive Therapy	Effect	Length remission (Mo.)	Outcome following last HN_2 injection
					HODGKIN'S DISEASE						
1	F21	30	+	Poor	5 in 5 days	19	0.5	Folic	Poor	....	Died, 9 days
2	M29	10	+	Poor	5 in 5 days	30	0.6	None	Fair	0.5	Died, 23 days
3	F42	60	+	Poor	3 in 12 hours	22.5	0.6	None	Fair	1.0	Died, 2 months
4	F34	108	+	Poor	1	28	0.6	41°	Fair	0.5	Died, 16 days
5	M45	36	+	Poor	4 in 24 hours	35	0.6	None	Good	3.0	Living*
6	M26	36	+	Poor	1	20	0.27	None	Good	1.5	....
		37.5		Poor	1	20	0.3	None	Poor	0.2	Died, 30 days
7	M21	42	+	Poor	1	9	0.2	41°	Fair	1.0	....
		43.5		Poor	1	30	0.55	Teropterin 14 times	Good	1.8	....
		45		Poor	1	15	0.25	....	Poor	....	....
		45.5		Poor	1	15	0.25	....	Poor	....	Died, 20 days
8	M31	6	+	Poor	1	25	0.3	None	Fair	1.0	....
		7.5		Poor	1	16	0.2	None	Fair	1.0	....
		8.0		Poor	1	16	0.2	None	Poor	0.5	....
		8.7		Poor	1	16	0.2	None	Poor	0.4	Died, 3 months
9	F41	60	+	Poor	6 in 6 days	22	0.6	None	Fair	3.5	....
		64		Poor	1	13.2	0.3	None	Fair	4.0	....
		68		Poor	1	20	0.5	None	Fair	2.0	....
		71.5		Poor	12 in 6 days	24	0.6	None	Fair	2+	Living*
10	M52	30	+	Poor	14 in 7 days	28	0.6	None	Fair	2.5	Living*
11	M27	42	+	Fair	4 in 12 hours	40	0.57	Diopterin 12 times	Good	4.0	....
		49		Poor	7 in 7 days	30	0.52	None	Poor	1.0	Died, 1 month
12	F36	30	+	Fair	1	37	0.6	41.2°	Fair	1.0	....
		31.7		Poor	15 in 7 days	30	0.6	None	Poor	0.2	Died, 42 days
13	F37	12(?)	+	Fair	1	24	0.6	None	Good	6+	Living*
14	M29	11	+	Good	1	40	0.6	None	Good	2.5	....
		13.3		Good	1	20	0.3	None	Good	3+	Living*
15	F27	3	—	Good	1	36	0.6	None	Good	3.0	....
		6		Good	1	36	0.6	None	Good	1+	Living*
16	F40	48	+	Good	3 in 12 hours	30	0.6	None	Good	2.0	Living*
17	M37	24	—	Good	1	40	0.57	None	Good	1.2	....
		25.2		Good	1	20	0.3	None	Good	1.2	....
		26.4		Good	1	20	0.3	None	Good	3+	Living*
18	F26	42	+	Good	1	30	0.6	None	Good	4.0	....
		47		Good	1	16	0.3	Pyridoxine	Good	5.0	Living*
19	M33	1	—	Good	1	36	0.3	41°	Good	0.3	....
		1.3		Good	1	35	0.3	None	Good	0.7	....
		2		Good	1	20	0.2	None	Good	1.0	....
		3		Good	1	20	0.2	None	Good	1.2	....
		4.2		Good	1	20	0.2	None	Good	1.1	....
		5.3		Good	1	20	0.2	None	Good	1+	Living*
20	M27	12	—	Good	1	40	0.6	None	Good	1.0	....
		13		Good	1	20	0.3	None	Good	1.5	....
		14.5		Good	1	20	0.3	None	Good	0.5	....
		15		Good	1	20	0.3	None	Good	1.0	....
		16		Fair	1	20	0.3	None	Good	1.5	Living*
21	F50	18	+	Good	1	40	0.6	41°	Good	1.0	....
		19		Good	1	40	0.6	None	None	1.0	....
		20.6		Good	1	20	0.3	None	None	1.0	....
		21.6		Good	1	20	0.3	None	Good	1.4	....
		23		Fair	1	20	0.3	None	Good	2.5+	Living*
22	F64	12	—	Good	4 in 10 hours	40	0.6	Diopterin 7 times	Good	8.0	....
		20			1	39	0.6	None	Good	3+	Living*
23	M45	5	—	Good	1	40	0.55	None	Good	1.4	....
		6.4		Good	1	20	0.3	None	Good	1.3	....
		7.7		Good	1	20	0.3	None	Good	0.3	....
		8.0		Good	1	20	0.3	None	Good	0.5	....
		8.5		Good	1	20	0.3	None	Good	0.5	....
		9.0		Good	1	20	0.3	None	Good	1.0	....
		10.0		Good	1	8	0.12	None	Good	1.0	....
		11.0		Good	1	20	0.3	None	Good	2+	Living*

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*Living at date this table was compiled.

TABLE 1—(Continued)

Case No.	Sex and Age	Duration disease (Mo.)	X-ray Therapy prior to HN_2	General condition at HN_2 therapy	HN_2 Therapy			Additive Therapy	Effect	Length remission (Mo.)	Outcome following last HN_2 injection
					Schedule (injections in period)	Total dose (Mg.)	Dose (Mg./Kg.)				
LYMPHOSARCOMA, INCLUDING RETICULUM-CELL SARCOMA											
24	M13	14	+	Poor	3 in 10 hours	30	0.6	Diopterin 7 times	Good	0.3	Died, 26 days
25	M35	12	+	Poor	4 in 24 hours	38	0.6	Diopterin 18 times	Good	0.6	....
		13		Poor	2 in 8 hours	20	0.3	None	Poor	0.1	Died, 19 days
26	M50	7	+	Poor	3 in 6 hours	38	0.6	None	Good	0.6	Died, 43 days
27	F24	29	+	Poor	5 in 4 days	21	0.3	None	Fair	0.5	....
		33		Poor	8 in 5 days	40	0.6	None	None	....	Died, 5 days
28	M34	5	+	Poor	6 in 6 days	40	0.6	None	Poor	0.2	....
		5.5		Poor	4 in 4 days	40	0.6	None	None	....	Died, 19 days
29	F57	11	+	Poor	3 in 3 days	30	0.6	None	Fair	0.7	....
		13		Poor	1	20	0.43	40.3°	Fair	0.9	Died, 29 days
30	F38	8	—	Poor	. 1	26	0.3	None	Good	0.2	Died, 11 days
31	M40	7	+	Poor	18 in 9 days	36	0.6	None	None	....	Died, 3 days
32	M25	6	—	Poor	1	20	0.3	None	Poor	0.1	Died, 4 days
33	M34	2	—	Poor	1	40	0.6	None	None	....	Died, 0.5 days
34	F47	16	+	Poor	1	18	0.3	41°	Poor	....	....
		16.2		Poor	1	17	0.3	None	Poor	0.8	....
		17		Poor	1	15	0.3	None	Poor	0.5	....
		17.5		Poor	1	15	0.3	None	Poor	0.5	....
		18		Poor	1	15	0.3	None	Poor	0.5	Living*
35	M58	10	+	Fair	1	40	0.6	41°	Poor	0.2	Living*
36	F63	5	—	Fair	20 in 10 days	40	0.6	None	Fair	0.5	Living*
37	M57	60(?)	—	Good	1	36	0.6	None	Fair	0.7	....
		61		Good	1	18	0.3	None	Fair	2.0	Living*
38	M27	36	+	Good	4 in 4 days	28	0.4	None	Good	4.0	....
		39		Good	7 in 7 days	28	0.4	None	Good	3.0	....
		49		Good	6 in 6 days	28	0.4	None	Good	2.0	Living*
39	F49	84	+	Good	1	33	0.6	None	Good	2.0	....
		87		Good	1	17.4	0.3	None	Good	1.0	....
		91		Good	1	16	0.3	None	Good	0.5	....
		91.5		Good	1	16	0.3	None	Good	1+	Living*
40	M57	36	—	Good	1	20	0.3	None	Good	1.0	....
		37		Good	1	20	0.3	None	Good	2.0	....
		39		Good	1	20	0.3	None	Good	2+	Living*
41	F53	48	—	Poor	1	50	0.6	None	Good	2.5	....
		53		Fair	1	23	0.3	None	Good	3.0	Living*
42	M79	120	+	Poor	1	21	0.3	None	Good	0.7	....
		121		Fair	1	20	0.3	None	Good	1.0	Living*
LYMPHATIC LEUKEMIA											
43	M4	7	—	Poor	1	10	0.7	Diopterin 26 times	None	....	Died, 3 months
44	M42	16	—	Fair	1	37	0.57	None	Good	1.0	....
		17		Fair	1	20	0.3	None	Good	1.0	....
		18		Fair	1	20	0.3	None	Good	3+	Living*
OTHER LYMPHOMAS											
45[1]	M63	18	+	Fair	3 in 6 hours	40	0.5	Diopterin 15 times	Good	2.0	....
		21		Good	1	25	0.3	None	Good	1.5	Living*
46[2]	F55	60	+	Fair	1	45	0.45	None	Fair	1.0	....
		62		Fair	6 in 3 days	50	0.53	None	Fair	1.0	....
		66		Fair	26 in 13 days	52	0.6	None	Poor	....	Living*
47[3]	M21	8	—	Poor	2 in 2 days	24	0.6	None	Poor	0.2	....
		9		Poor	1	10	0.3	None	None	....	Died, 1 day
48[3]	M46	6	—	Fair	1	32	0.6	None	None	0.6	....
		6.6		Fair	1	16	0.3	None	None	0.4	....
		7		Fair	1	16	0.3	None	None	0.6	....
		7.6		Poor	1	16	0.3	None	None	....	Living*

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*Living at date this table was compiled.

[1] Giant follicular lymphoma.

[2] Giant follicular lymphoma 3 years before; present type unknown.

[3] Type undetermined.

of these (Cases Nos. 4, 10, 30, 46 and 50) a severe coagulation defect, as already described by Jacobson and co-workers,[19] was produced. Severe leukopenia, thrombocytopenia, prolongation of bleeding and clotting time, cutaneous petechiae and ecchymoses developed in the five patients. One (Case 4) was a 32-year-old female with a nine-year history of Hodgkin's disease, who had been previously treated with roentgen rays. She died 16 days following a single injection of 27 mg. of HN_2 given with hyperthermia. This patient showed pronounced improvement until the fourteenth day when persistent auricular paroxysmal tachycardia suddenly developed. Necropsy revealed pulmonary and renal hemorrhages, and multiple scattered ecchymoses and petechiae on the serous surfaces. The second (Case 30) was a 37-year-old Negress who died 11 days after 26 mg. of HN_2 was given in a single injection for a disseminated and terminal lymphosarcoma. The patient was moribund when therapy was administered. There was a dramatic disappearance of multiple large subcutaneous tumor masses within 24 hours after therapy. A week later multiple areas of petechiae and ecchymoses developed and the patient died despite multiple transfusions.

The third (Case 50) was a patient with terminal monocytic leukemia and it is difficult to attribute her death to HN_2. Two patients with hemorrhagic diatheses (Cases 10 and 46) recovered. It is to be noted that these untoward reactions occurred in patients with far-advanced neoplastic disease who were in poor general and hematologic condition prior to therapy.

RENAL EFFECTS

Examinations of the urine for albumin, glucose, and microscopic elements revealed no pronounced changes following HN_2 therapy. Repeated urea clearance studies revealed no significant alteration. It was noted, however, that an increased quantity of coproporphyrin was excreted in the urine following nitrogen mustard therapy in five cases thus studied. Further details of this observation will be reported elsewhere.[2]

TABLE 2

			HN_2 Therapy				
Case No.	Sex and Age	Diagnosis	Schedule (injections in period)	Total Dose (Mg.)	Dose (Mg./Kg.)	Additive Therapy	Effect
49	M25	Myelocytic leukemia	6 in 6 days	42	0.6	None	Good
50	F25	Monocytic leukemia	2 in 2 days	45	0.6	None	None
51	M65	Ca lung	1	30	0.6	Diopterin 9 times	None
52	M61	Ca lung	1	30	0.58	41°, Teropterin 14 times	None
			1	30	0.58	None	None
53	M60	Ca lung	1	46.6	0.6	41°	None
54	F47	Ca lung	1	30	0.6	None	None
55	M37	Ca lung	2 in 1 day	40	0.6	None	None
			2 in 1 day	40	0.6	None	None
			2 in 1 day	40	0.6	None	None
56	F41	Ca cervix	1	35	0.53	None	None
			1	18	0.25	None	None
57	F22	Ca cervix	4 in 5 days	20	0.5	None	None
58	F46	Ca uterus	1	20	0.3	None	None
59	M64	Ca mouth	1	50	0.6	41°	None
60	M27	Ca testis	2 in 2 days	30	0.6	Diopterin 14 times	None
61	M34	Ca testis	1	40	0.55	None	Fair
			1	10	0.14	None	Fair
			1	20	0.23	None	Fair
			1	20	0.23	None	Fair
			1	20	0.23	None	Fair
62	F4	Ca nasopharynx	1	6.6	0.57	None	None
63	M18	Ca, primary (?)	1	20	0.3	None	None
64	M17	Osteogenic sarcoma	1	30	0.57	None	None
65	M32	Myosarcoma	1	24	0.6	None	None
66	F32	Thymoma	6 in 6 days	36	0.6	None	None
67	M9	Medulloblastoma	1	5.25	0.3	None	Good
			1	5.34	0.3	None	Good
			1	5.5	0.3	None	Good
			1	3.0	0.2	None	Good
			1	3.0	0.2	None	Good
			1	3.0	0.2	None	Good
			1	6.0	0.3	None	Good
			1	3.0	0.2	None	Good
			1	6.2	0.3	None	Good
			1	5.8	0.3	None	Good
			1	5.1	0.3	None	Poor
			1	5.1	0.3	None	Poor

HEPATIC EFFECTS

Studies of pre-treatment and post-treatment liver functions tests have not revealed any definite effect of HN_2 upon liver function as measured by determinations of direct and indirect Van den Bergh reaction, cephalin flocculation, thymol turbidity and bromsulfalein retention. The results of these tests have not been affected either within a few days or after several months following HN_2. No effect has been observed on the prothrombin time in the patients studied in this series.

Three patients with Hodgkin's disease (Cases 2, 6 and 8) died with progressive jaundice and other evidence of severe liver damage. They died 16, 30 and 90 days, respectively, following HN_2 injection. In all three of these instances necropsy revealed massive involvement of the liver with Hodgkin's disease. It is felt that HN_2 was not responsible for the terminal syndrome in these patients.

OTHER BLOOD CHEMICAL DETERMINATIONS

In general, there was a slight drop in the total blood protein, especially the globulin fraction, following HN_2 administration. This was particularly noted in patients with Hodgkin's disease and other lymphomas in whom the albumin-globulin ratio was decreased due to the elevation of the globulin fraction. The reduction of globulin was encountered as soon as three days following therapy and was observed to persist for as long as six months after administration of HN_2.

Pre-treatment and post-treatment determinations of nonprotein nitrogen, creatine and creatinine, and cholesterol of the blood revealed no consistent changes following HN_2 therapy. Occasional slight rises in blood creatinine, but within upper limits of normal, were inconsistent.

MORTALITY

Four patients in this series died under conditions that would implicate the toxicity of HN_2 as one of the causes. Hemorrhagic diathesis developed in three of those patients, and necropsy revealed numerous petechiae throughout the serous cavities and other organs. The fourth patient (Case 33) was a 34-year-old man who at the time of treatment was in a terminal state with reticulum cell sarcoma. He had had laparotomy ten days before HN_2 was given, and a tight abdominal bandage had been applied to the abdomen to support the wound because of the expected retching. In addition, he had had a hydrothorax on the left side before therapy with HN_2. He received 40 mg. HN_2 and died of cardiac and respiratory failure 12 hours following the administration. The effects of nitrogen mustard in this case were complicated by the restriction of respiratory space by the hydrothorax and the abdominal splinting.

EFFECTS ON NEOPLASTIC DISEASE

Hodgkin's disease. Of 23 patients with Hodgkin's disease treated with HN_2, all but one (who was already in a terminal state) showed a definite objective response to the therapy. One of the manifestations of response was remission of fever (when present) usually within 72 hours after administration of HN_2. In one case (No. 7) in which the temperature did not fall, the patient was in a terminal condition; but three previous courses of HN_2 had had a definite effect upon the elevated temperature. There was definite effect upon lymph nodes, which usually were considerably reduced in size and became softer within a few days after the single large-dose therapy. Hepatomegaly and splenomegaly, when present, were also notably affected within one or two weeks following therapy, whereas reduction in mediastinal enlargement usually became evident within three or four weeks after therapy. The general condition of the patients improved; many of them, after a short decline in weight following the nausea, vomiting and loss of appetite incident to HN_2, gained up to 5 to 8 kilograms in weight during the subsequent one or two months.

The lengths of the remission periods in Hodgkin's disease following HN_2 therapy are recorded in Table 1. Ten patients were in poor general condition at the initiation of HN_2; in fact, four (Cases 1, 3, 6 and 7) were obviously moribund. All had been treated extensively with roentgen irradiation. Even in this group, in all but two cases there was some effect on the tumor process, and partial remissions for up to four months were obtained. The average remission, however, was only 1.5 months in duration. The effects on the moribund patients often were dramatic although short-lived.

In 13 patients who were in fair or good general condition before being treated with HN_2, remissions of up to eight months were obtained with single courses of HN_2. The average remission period was approximately three months. The end of the remission is recorded as the time of first evidence of recurrence of fever or return of enlargement of the lymph nodes, spleen or liver.

Five patients with Hogkin's disease (Cases 19-23) are being maintained on repeated dose schedules of HN_2, the agent being given before clinical evidence of recurrence is present. These patients have been followed for up to eight months after the first therapy with HN_2. Although the initial condition of the patients was good, the disease is obviously progressing in two of these patients (Cases 20 and 21). There is no evidence that HN_2 increases the longevity of either patients who are in good condition and with the disease in an early stage or those who are in poor condition when therapy is started.

Lymphosarcoma. The effects of HN_2 on patients with lymphosarcoma were more transitory than upon those with Hodgkin's disease. The disease was favorably affected, in terms of reduction in the size of the neoplastic masses, in 13 of 15 patients. Two moribund patients (Cases 25 and 30) had complete clinical disappearance of multiple skin nodes within 72 hours after therapy. The length of remission in patients in poor condition, however, was measurable in terms of days. Only four patients in this group were in fair or good general condition; the average remission of the disease in these cases was between one and two months, and the longest remission was four months.

It was in this group, and in patients at a terminal stage of Hodgkin's disease, that almost every one of the serious toxic effects of HN_2 was noted.

Mycosis fungoides. The results in four cases of mycosis fungoides were encouraging. In three of these cases previous roentgen therapy had had no favorable effect on the lesions. Remissions of two months or more, consisting of essentially total clearing of the skin lesions, were obtained with HN_2. Retreatment was instituted as soon as the lesions began to reappear. Perhaps the most comforting aspect of the therapy was the complcte disappearance of pruritus within a few hours or days after HN_2 was administered. This was also noted in one patient (Case 22) with Hodgkin's disease in whom pruritus was a distressing symptom. The effect of HN_2 on mycosis fungoides in all cases observed by the authors and by other investigators has been temporary with no permanent benefits.

Other neoplasms. Favorable results with HN_2 in neoplastic diseases other than the lymphomas and leukemias were rare. This is in agreement with similar findings recorded in the literature. Table 2 presents reports on 18 patients in the present series. No objective effect of value was observed in five patients with bronchogenic carcinoma.

Two patients showed objective effects on the neoplastic process. The first was a 32-year-old male with carcinoma of the testicle (Case 61) with a large periaortic mass in the abdomen. The mass decreased to one-half of its original size following repeated courses of HN_2. The second patient was a 9-year-old boy (Case 67) with medulloblastoma who was started on HN_2 therapy when he was in a terminal state. This child was maintained on an ambulatory basis for over six months upon repeated courses of HN_2. There was decrease in intracranial pressure and pronounced clinical improvement following the administrations of HN_2. The last two courses of HN_2, however, had no further effect and the child died of the disease.

EFFECT OF HYPERPYREXIA, DIOPTERIN AND TEROPTERIN

In cases of Hodgkin's disease treated with nitrogen mustard under conditions of raised body temperature, reduction of the size of the lymph nodes and other masses was more rapid than with similar doses without hyperpyrexia. However, the remission period and other effects were not increased by this procedure. It is considered that the addition of hyperpyrexia results in no advantage over HN_2 therapy without hyperpyrexia.

In the nine cases in which teropterin and diopterin were injected in conjunction with HN_2 therapy there was no difference in effect and no evidence of enhanced effect or additional beneficial results as compared with results obtained with HN_2 alone.

DISCUSSION

The majority of reports of treatment of Hodgkin's disease and other lymphomas with one of the amine mustard compounds deal with cases in which there was previous treatment with roentgen rays. Indeed, the decision for treatment with an amine mustard was usually reached because of the non-responsiveness of the disease to further roentgen therapy. It is obvious that a proper conclusion as to the value of the amine mustards in the treatment of lymphomas cannot be based on results obtained in such cases.

In Hodgkin's disease, the results herein reported combined with those in the literature show that approximately 90 per cent of the patients who had not been treated by roentgen rays at the time they received amine mustard therapy responded favorably to the agent by prompt regression of fever, adenopathy, splenomegaly, hepatomegaly and constitutional symptoms, and a return to a sense of well-being for periods of one month to over a year. Patients of this category in the series herein reported were in fair to good general condition when therapy was started and the average duration of the disease before therapy usually was one year or less. The average remission period, however, was approximately three months.

About 70 per cent of the patients who had been treated with roentgen rays and who were still responding favorably to such therapy at the time the amine mustards were administered showed fair or good responses to the amine mustards. Patients in this category usually had had the disease for about three years, but were in fair general condition. Only 50 per cent of the patients who had had the disease for three years or more and who were no longer responding to roentgen therapy—usually they were in poor physical condition—responded favorably to amine mustard therapy.

A similar situation occurred in patients with lymphosarcoma, reticulum cell sarcoma and other related lymphomas. However, the average length of remission in this group even among patients in good general condition was considerably shorter than in patients with Hodgkin's disease. The average remission was approximately one month.

It was in patients with far-advanced lymphomas that most of the serious toxic reactions to amine mustards were observed. No effects on the liver or kidney function which could be attributed to HN_2 were observed even in patients who received up to 160 mg. of HN_2 in eight courses over a period of eight months. The acute effects on the gastrointestinal tract, although of great inconvenience to the patients, resulted in no serious complications. With the possible exception of one patient, no serious central nervous system effects were elicited; among transitory effects that were observed were headache and unsustained nystagmus. The coagulation defect, observed in five of the 67 patients in this series, was the most serious complication. It has been reported[19] that protamine, toluidine blue and other thionine dyes neutralize this hemorrhagic effect.

In patients who are in good general condition, the administration of 0.3 mg. of HN_2 per kilogram of body weight in one injection appears to be as relatively safe as the standard dose schedule of 0.1 mg. per kilogram of body weight daily for three days. Serious toxic reactions were encountered twice in 76 courses of HN_2, and in both instances the patients were in poor condition. The single-dose schedule has the advantage of economy and convenience, and has been given repeatedly on an ambulatory basis. Administration of the total dose of 0.6 mg. per kilogram of body weight to patients not in good condition cannot be recommended because of serious toxic manifestations in four of 36 instances in which this procedure was followed. The period of remission is not prolonged over that obtained by less aggressive therapy.

Using hyperpyrexia during HN_2 administrations was based on the reports of enhanced effects of antibacterial agents when combined with fever.[5] It has been postulated that the major effect of HN_2 is due to the formation of the ethylenimonium compound and the formation of this compound is increased with elevated temperature.[4] It is the authors' impression that HN_2 combined with hyperpyrexia caused more rapid decrease in tumor masses; a more severe depression in leukocyte elements resulted; the length of remission, however, was not enhanced, and the increased hazard of this therapy does not justify further trial of the procedure.

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Acute Urinary Tract Complications Following General Surgical Procedures

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SUMMARY

The most frequent postoperative urinary problem after various types of general operations is urinary retention. It may be due to previously unrecognized dynamic obstruction, but is more often psychogenic or due to a temporary disturbance in function of the sympathetic and parasympathetic nervous systems. Catheterization may be done safely as a means of preventing over-distention of the bladder.

Irritative postoperative lesions are usually due to trigonitis, cystitis or pyelitis. The immediate trauma of pelvic operation is sometimes followed by infection. Careful study will reveal the cause and the type of infection and will give an indication for proper treatment.

Anuria may be the result of postoperative shock, chemical injury of the kidneys or block of the urinary channels by crystals, detritus, edema, or operative accident. A careful, immediate analysis of the problem is imperative. Fluid intake in anuria must not be pushed to the point of edema.

Accidental surgical blocking or severance of a ureter usually may be repaired without difficulty following a period of recovery to permit subsidence of the acute tissue reaction caused by urinary extravasation.

URINARY tract complications arising subsequent to general surgical procedures range in importance from simple urinary retention in the bladder, which may be psychologic in origin, to grave anuria.

DIFFICULTY IN VOIDING

The troublesome complication of difficulty in voiding which may follow almost any surgical procedure requiring that the patient be kept in bed, is often easily overcome by applying simple psychologic aids. Its incidence appears to have some relationship to the type, depth and length of anesthesia and, of course, to the type of operation. About 17 per cent of general surgical patients have to be catheterized postoperatively.

In most cases the problem is one of simple reflex spasm. The patient's fear of doing anything which may cause pain after operation acts to inhibit the parasympathetic nerves and to sensitize the sympathetic nerves. The lower urinary tract nerve supply is widespread. The parasympathetics arise from the second and third sacral segments, the sympathetics from the second thoracic to the fourth lumbar segments.

Surgical irritation of the sympathetics stimulates them to override the parasympathetic impulses, producing increased sphincter tension and a relaxed bladder, with retention resulting. Retention may result from pure detrusor muscle paralysis caused by parasympathetic denervation by surgical injury or section of the nerves. A mild form of bladder paralysis occurs as a result of this type of interference in a large number of patients. It is readily recognizable cystometrically in the first week following operation. Of rarer occurrence is a severe form of paralysis necessitating prolonged treatment by tidal drainage. Mild forms of detrusor paralysis may result in severe retention when there are preexisting obstructive lesions such as bladder neck obstruction or urethral strictures. Following resection of the rectum, urinary retention is very frequent, due to division of the autonomic nerves, which are, however, in time regenerated. Overdistention in the bladder during this period must be avoided. Undue stretching of the bladder by overdistention may injure the neuromuscular mechanism of the organ to such an extent that recovery of its expulsive power may be difficult and prolonged.

Postoperative urinary infections are sometimes attributed to catheterization after operation, and for this reason emptying of the bladder by catheter is often delayed in the hope that the patient will ultimately void. To be sure, careful aseptic precautions should be observed in catheterization, but in reality it is difficult to induce urinary tract infection by catheterization of the urethra in the patient whose urinary tract is normal. It is much more probable that urinary tract infections which often follow a postoperative period of inability to void are due to over-stretching of the bladder with consequent reduction of its normal resistance to bacterial invasion. The size of the catheter, especially in the male, should fit the external urinary meatus. Very small catheters may not readily follow the course of the urethra. Encountering normal urethral folds in their passage through the canal, catheters of small calibre double up, giving the impression of meeting an obstruction. A catheter of proper size causes no

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more discomfort than does a small one and it presses out such folds as it advances through the urethral channel. Lubrication should be generous. Ample lubrication is the secret of successful, comfortable catheterization of the urethra. In the female, the easily directed glass catheter is the most useful instrument for catheterization. Gentleness in handling all instruments is required. Force should never be used in passing a catheter.

INFECTIONS OF THE URINARY TRACT

Infections of the urinary tract which follow general surgical procedures usually indicate the presence of a preexisting urinary tract lesion. When the acute stage of the infection has subsided, a careful search should be made for the underlying cause. It is important to identify the invading organism in order to use the antibiotic or urinary antiseptic most likely to eradicate it. Yet, from a practical standpoint, since antibiotics are known to reinforce one another to such a degree that the effectiveness of most of them in combination is much greater than the sum of each used independently, it is quite proper to launch the attack against the bacterial invader with a combination of sulfone urinary antiseptics plus one or more of the antibiotics, using the combination at once, even before the result of the culture is known. Since many individuals are sensitive to these substances, patients given them must be observed carefully so that the drug may be stopped immediately if evidence of unfavorable reaction arises.

In the female, even though the urine is not infected, bladder distress frequently follows pelvic operations. Immediate cystoscopic examination, when carried out in such cases, reveals edema of and hemorrhage into the base of the bladder, clearly visible on the bladder side of the membrane. Despite the bruising of this area entailed in extensive pelvic dissections, pain in the bladder following pelvic operations is relatively and rather surprisingly rare. With the performance of increasing numbers of panhysterectomies the incidence of postoperative urinary infections and painful trigonitis is rising. Patients in whom this procedure has been carried out seem to have trouble in the second and third week following operation rather than during the immediate postoperative period. In its natural state the vaginal vault harbors many bacteria. Per primum healing here must be rare. Healing must take place by secondary intention as the rule. It would be surprising if the inflammatory reaction accompanying healing in this area did not extend across the thin vaginal septum into the surgically bruised trigone.

SHOCK

Shock is now rarely seen since surgeons have learned the usefulness of transfusions during prolonged operative procedures and since the newer methods of anesthesia have come into general use. These methods have been brought into use by specialists in anesthesia who also have become experts in judging the altered physiology of the patient subjected to the combination of surgical procedure and anesthesia. With the lessening of operative shock through gentle handling of tissues by the surgeon and with the maintenance of blood pressure, body temperature and fluid balance by the anesthetist during the operation, postoperative anuria is less frequently seen.

Shock must be treated at once with every means available—external heat, lowering the head of the patient, transfusions of blood or plasma, as well as adequate amounts of fluid and injections of desoxycorticosterone acetate. Shock is one of the most frequent causes of postoperative failure in kidney function. Many days of seriously damaged kidney function may follow a few hours of shock.

POSTOPERATIVE ANURIA

After operation, a continuing pronounced reduction in the urinary output or postoperative anuria accompanied by a rising non-protein nitrogen level are danger signals of extreme importance. Each case demands careful individual analysis. The condition of the urinary tract must be known. Fluids should not be forced in event of anuria. It is difficult, but often an expression of mature wisdom, to avoid extensive therapeutic measures in patients with anuria. Their own metabolic products rapidly accumulating are the best diuretics of all and will do more to establish renal function, if the blood pressure is kept at a proper level, than any artificially administered renal stimulant.

For the patient's comfort, acidosis and alkalosis should be prevented in anuria through the intravenous use of the buffer sodium lactate solution. The following formula is used to determine the number of cubic centimeters of the molar sodium lactate solution to be used: 60, minus the carbon dioxide combining power, times three-tenths of the body weight in kilograms, with the result multiplied by six. The patient feels better if the acid-alkali ratio is kept in chemical balance. It is not known if the speed of recovery from anuria is helped by this means. However, since it is certain that in anuria, edema depresses all body functions and is liable to interfere with the return of the kidney function to normal, the fluid intake must carefully be kept below the edema level.

In particular, the urinary tract must be demonstrated to be free of obstruction. This is especially important if the sulfonamides have been used, because of their tendency to produce crystalline deposits in the urinary tract which tend to mass and block the ureters. If the anuria is caused by surgical obstruction of the urinary tract, the site of the lesion will be located by a cystoscopic study. This study should be carried out as soon as the attending physician is sure that anuria exists.

To acquire a knowledge of the patency of the ureters, ureteral catheterization must be done. Gentle cystoscopic examination with the passage to the renal pelvis of very small ureteral catheters will not harm the patient and will demonstrate that the passage from the kidneys is not blocked.

Report of a case illustrating a type of obstructive anuria follows:

CASE REPORT

Case 1: A young female patient in a hospital had not voided urine for three days. She had a fever of 104° F.; pulse rate of 120, and malaise, but no localized pain and the bladder was empty. Three days previously, during labor, under the observation of an experienced obstetrician, the patient had suddenly gone into shock. The obstetrician realized that the uterus had ruptured and had the patient prepared for abdominal section while giving a transfusion. He called a surgeon and together they opened the abdomen, removed the living baby from the peritoneal cavity and performed a hysterectomy. The anesthetist maintained a continuous transfusion and the patient left the operating room in good condition, but for three days there had been no urine passed.

Although the patient's general condition was good, attending physicians felt that the anuria was a result of operative shock, perhaps added to by the transfusion. Because there was no localized kidney pain they had not seriously considered a dynamic obstruction until the temperature became elevated. Then they sought consultation.

In a cystoscopic study, both ureters were found solidly blocked at a point 3 centimeters above the trigone. The abdomen was then reopened, the ureters were isolated and followed downward to the stump of the cervix. They were found to be cut off and to have been sewed into the cervical stump with the round ligaments. It was not difficult to disengage them and to re-implant each ureter into the bladder just above its normal site in the horn of the trigone. The dilatation of the ureters usual in pregnancy had lengthened them, and the lengthening process had been augmented by three days of ureteral obstruction. Hence, although shortened by the previous operation, they were easily reimplanted near their normal site. Their widened diameter also made it easy to leave a No. 11 French ureteral catheter inlying in each ureter to the renal pelvis. The catheters were then passed down through the urethra to act as splints protecting the ureterovesicalneostomy. A flood of urine was released during the operation, and the flow continued thereafter. There was little postoperative reaction, and the non-protein nitrogen level fell postoperatively from 150 mg. per 100 cc. to normal in two days.

On the eleventh day, the No. 00 chromic sutures stitched in the bladder wall to hold the ureteral catheters in place had absorbed and the catheters slid out of the bladder. The patient voided normally from that day on.

Dilatation of the ureterovesical orifices has never been necessary. The patient has continued well for ten years since this surgical experience. Pyelography recently revealed what appeared to be a normal upper urinary tract. Kidney function tests showed normal readings.

The placing of ureteral catheters as a precautionary measure prior to gynecological operations, thus making the ureters readily palpable, would be an added protection against ureteral injuries during pelvic operations. Gynecologists in general feel that this is an unnecessary precaution since they are confident in their ability to know just where the ureter lies without this aid, yet occasionally even an able and seasoned surgeon, thoroughly familiar with pelvic anatomy, may ligate or sever a ureter in the course of a comparatively simple gynecologic operation.

The author has observed a considerable number of such accidents. Ligation of both ureters has been observed in five patients. In one of these patients both ureters were completely ligated. In another, both ureters were completely ligated and cut away from their attachment to the bladder. Two of the patients in this group had one ureter partially constricted by a ligature, and the other completely constricted. One had both ureters partially constricted. Eight patients have been observed in whom the left ureter only was ligated; three in whom the left ureter was cut by a suture, followed during the immediate postoperative period by extravasation of urine. In one of the latter three, the extravasating urine made its way through the abdominal wound onto the abdomen as well as into the vagina, while in the other two the urine found its way only into the vaginal vault. In one of these latter the right kidney was found to have a preexisting ureteropelvic juncture obstruction due to a congenital aberrant blood vessel which crossed the ureter at this point of juncture with the renal pelvis. This opposite kidney was almost functionless and the patient was depending for kidney function on the left side in which the ureter had been cut by a stitch and partially ligated. By the time the patient was seen by the author, a large hydro-ureter and hydronephrosis had developed on the left side and kidney function was rapidly deteriorating. Function of both kidneys was restored by reimplantation of the left ureter into the bladder and repair of the right hydronephrosis.

In one case the left ureter was completely severed by a surgeon who, recognizing the lesion, sought assistance. A satisfactory end-to-end anastomosis of the ureter was done and there has been no subsquent hydronephrosis or pain.

Torn urethral sphincters following panhysterectomy have been observed in two patients, and urethrovaginal fistula in one. One patient with vesicosigmoidal fistula and one with vesicovaginal-rectal fistula following panhysterectomy have been observed, as well as ten with vesicovaginal fistulas following this procedure.

In most of the cases listed in the preceding paragraph, the lesion was satisfactorily repaired. Several of the patients in whom a ligated ureter has been opened and widened through ureteral dilatation have to be subjected regularly to ureteral dilatation in order to keep the ureter sufficiently wide. If ureteral dilatation is neglected, pain in the kidney and increasing hydronephrosis and hydro-ureter follow.

In recent times, however, the author has had 100 per cent success with the closure of vesicovaginal fistulas due to a recent improvement in surgical technique which, incidentally, greatly simplifies the surgical procedure of closure.[1]

CASE REPORT

Case 2: In one of the three previously mentioned cases in which there was extensive urinary extravasation after a suture had passed through the wall of a ureter, the husband of the patient insisted that the kidney must not be removed, although intravenous pyelograms had revealed much dilatation of the left ureter and left renal pelvis down to the point where the ureter had been transfixed and cut by the suture. The husband's terms were accepted and the operation was undertaken. Exploration revealed the point of ligation of the ureter 8 centimeters above the ureterovesical juncture, well above the vault of the bladder. The ureter, above the point of ligation, was widely dilated. At first it seemed impossible to reimplant this ureter in the posterior wall of the bladder because of its shortness.

As an alternative proposal, a uterocutaneous neostomy was was being considered. A No. 18 French Robinson urethral catheter was passed upward through the ureter into the renal pelvis. While this much-dilated ureter was being palpated against the firm Robinson catheter, it occurred to the author that if a spiral incision were made around the ureter and the ureter then pulled downward, it would be greatly elongated as the diameter of its channel was reduced. It was not difficult to make such a spiral incision against the firm Robinson urethral catheter. The incision was carried spirally around the ureter almost to the renal pelvis. The No. 18 Robinson catheter was then withdrawn and replaced by a No. 10 Robinson catheter and the lower end of the ureter was pulled downward easily reaching a point one and one-half centimeters above the left ureteral orifice. Here it was implanted into the bladder wall, the No. 10 Robinson catheter within it having been carried through the wall of the bladder and passed to the outside through the urethra. Interrupted No. 00000 chromic stitches held together the cut edges of the ureter which ran spirally around the Robinson catheter. These stitches were placed infrequently along the course of the spiral incision in the ureter. Drainage through the Robinson catheter was perfect. There was no urinary extravasation and on the tenth postoperative day the Robinson catheter was withdrawn, leaving a perfectly functioning ureter. The hydronephrosis present in this kidney at the time of operation subsided considerably. At present, seven years after operation, the left kidney is functioning perfectly without pain. It is not hydronephrotic. The ureter is scarcely larger than normal in calibre. A cystogram reveals no reflux up the left side.

The ureter is probably more often ligated than cut in the course of general surgical procedures in which it is unexpectedly involved. It may be clamped, cut with a scalpel or scissors, transfixed by suture, stripped of its adventitia so closely that leakage later develops, or actually cut in two. Such cases are probably not all reported. Indeed, such a lesion in the ureter is often not discovered. When a severed ureter is discovered some surgeons advocate ligation of the proximal end of the severed ureter. Such a complete obstruction is often followed by the quiet development of hydronephrosis in the kidney which the ureter normally would drain. This obstruction through ligation of one ureter may even pass unnoticed throughout the postoperative course. However, if the kidney on the opposite side were deficient, grave results would follow. Leakage of urine due to a cut in the wall of the ureter may stop spontaneously in about ten days to two weeks. This period of drainage of urine could be shortened by the placing of an in-dwelling ureteral catheter in cases in which it is possible to catheterize the incised ureter.

Once urinary extravasation has taken place and an outlet for the urine has been established, it is best to withhold surgical intervention until tissue reaction has ceased and all the surrounding tissues have become firmly healed. A reparative operation may then be undertaken. However, if nephrectomy has been selected as the procedure of choice, it may be done at once, as soon as the function of the opposite kidney has been demonstrated to be adequate. Experience has shown that the natural tendency of the body to assist in the repair of such a lesion is so great that a patient may be given assurance that normal function will be restored.

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Relation of Neurological Complications of Subarachnoid Block to Some Unseen Dangers of New Techniques

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SUMMARY

Sterilizing solutions that by accident become mixed into the anesthetic agent are probably the etiological factor producing many of the neurological complications following spinal anesthesia.

Use of sterilizing solutions having an intensity of color so great that even one drop in the contents of an ampule will definitely color the anesthetic agent is the criterion of safety.

The neurological complications of subarachnoid block are discussed widely in the literature. Occasional cases are reported. Many are not reported. To the author's knowledge, during the past two years there have been five patients with such complications referred to neurosurgeons and orthopedic surgeons in the San Francisco Bay Area. Because of the complications reported in the literature and discussed at medical meetings, many surgeons refuse to let their patients have the benefit of spinal anesthesia; some actually help educate their patients against it. Although this is understandable, it is nevertheless regrettable, for many of these neurological complications might have been avoided.

The neurological complications to be considered in this presentation are the more serious ones—those referred to as the cauda equina syndrome—in which the nerves in the lumbosacral distribution of the cord are affected. The results of the complications run the gamut from paresthesia of short duration along one nerve root, incontinence of bladder or bowel, to complete and permanent transverse myelitis. It is pointed out in the literature that the lesion is maximal in the roots that are at the point of injection of the solution. In the case of a complete paraplegia it is obvious that the offending medium is in large quantity or more probably in high concentration, bathing the nerves or cord up to the dermatome level affected. It is not the purpose of this presentation to discuss the exact neurosurgical, pathological, or other aspects of the conditions mentioned. What the etiological factor is and how to eradicate it is the problem at hand. The two following cases are examples of severe complications with a common symptom which is thought to be a very definite clue, one to be looked for in many of these cases.

CASE REPORTS

Case 1: Hysterectomy was performed upon a 47-year-old white female patient under spinal anesthesia. The patient stated she felt a marked burning sensation when the anesthetic was given and for a few minutes thereafter. She felt the beginning of the operation but soon became numb.

Postoperatively there was complete anesthesia and paralysis. Two years later the condition became painful and a spastic type of paralysis began. Three years after operation an automatic cord bladder was established.

Case 2: A white male, aged 45, was given a spinal anesthetic for hemorrhoidectomy.

The patient stated that there was a severe burning sensation in the lower part of his body at the time the anesthetic was given. He stated that he felt most of the short operation but that in the late stages it was painless. The patient was paralyzed thereafter. This was three years ago.

Both patients are permanent paraplegics. Both had pronounced burning sensations when the spinal anesthetic solutions were injected.

In the early days the spinal anesthetic agent was responsible for many neurological complications. Since then much work has been done on concentrations, quantity, and toxicity of the anesthetic agents themselves. The result is that now there are relatively safe drugs and dosages for spinal anesthesia. Today there is practically no excuse for overdosage of the anesthetic drug itself except inexperience or ignorance of or indifference to the abundant literature on the subject. Yet paraplegia still sometimes follows spinal anesthesia. Why? Selective nerve paralysis is produced therapeutically in some conditions by alcohol. The author believes that by accident alcohol or some other antiseptic agent is the actual cause of many cauda equina syndromes following spinal anesthesia. It is known that the patient experiences a pronounced sensation of burning when alcohol is injected in therapeutic block procedures. It will be noted that in the two cases reported in preceding paragraphs the patients had a marked burning sensation upon injection of the spinal anesthetic and for a time thereafter. Could this have been due to alcohol?

Can anyone tell, by observation, the difference between alcohol, formalin, 10 per cent glucose, pontocaine or procaine solution? Can anyone detect at a glance a mixture of the two? The obvious answer is "No"! This is an unseen danger in spinal anesthesia which can be easily eliminated.

During the last few years the pharmaceutical houses have brought out most of our spinal anesthetic agents in solution form. Other solutions in

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ampules such as 10 per cent glucose, epinephrine, and ephedrine are now commonly used mixed with the anesthetic agent to produce desired results from spinal anesthesia. These are all colorless solutions. They are labeled at the factory correctly as to their contents. They are presumably sealed by flaming. Between the time they reach the operating floor and the time they are placed on the spinal anesthetic tray it is highly probable that they are made unsafe for intrathecal injection. Small cracks or other microscopic openings due to imperfect sealing are found in even the best ampules. If such an ampule is immersed in a sterilizing solution there may be and usually is some degree of transposition of the two fluids. The possibility is greatest in the case of 10 per cent glucose because of its high specific gravity. Transposition of the two fluids may, however, happen with any of the solutions.

In the majority of hospitals today the ampules which one picks up from the anesthetic tray have been sterilized in a colorless antiseptic solution. In a few hospitals the antiseptic solutions are colored but not adequately. No definite standard or formula has been set up for this. Usually the same process of sterilizing ampules for spinal anesthesia is used as in the case of glass tubes containing suture material. It is amazing that in one of the best and newer textbooks on conduction anesthesia, only a casual reference is made to this subject. To quote, "Ampules of various anesthetic solution are sterilized and stored in covered containers of 70 per cent alcohol dyed with methylene blue. . . . The addition of methylene blue to the solution shows up cracked ampules."[3] To maintain a policy of coloring solutions without definitely standardizing the intensity of the color is, the author believes, more dangerous in the long run than to leave them water-clear. It gives a false sense of security. The author has tested these solutions on many occasions. Frequently no color change could be noted even with equal parts of antiseptic and anesthetic solution mixed together in the ampule. The color must be according to a definite and tested formula. Thus, there is a very simple method of eliminating this unseen danger of using solutions in ampules for spinal anesthesia. A colored antiseptic solution whose ingredients are exactly measured, or some standard solution prepared by a reputable pharmaceutical house which will always be standard, should be chosen. If, after one drop of such a solution is mixed in the contents of the ampule, the color intensity is easily recognized, the sterilizing medium is safe. If no color change is noticed, the sterilizing medium is unsafe.

In one hospital tincture (not solution) of merthiolate is used as the sterilizing medium for all ampules containing solutions to be injected intrathecally. One small drop of this solution from a 25-gauge hypodermic needle will color the contents of the ampule red enough to make it immediately recognized. A red color is preferred to blue since blue is not as well seen in artificial light. Also, in hospitals where blue linen is used in the operating room a bluish contamination of spinal drugs might be overlooked. Red is a standard danger signal.

Another advantage to the use of the undiluted tincture of merthiolate—and this is common to some other acceptable media — is its characteristic of clinging to the outside of the ampule whether wet or dry, thus making the ampule look red. The ampules must be wiped off with a moistened sponge in order that the solution on the inside may be clearly seen. This is an added safety factor as it invariably brings attention to the possibility of transposition of fluids. If there is no colored solution adhering to the ampules, this may warn that some new assistant, not familiar with the problem, has changed the solutions and has probably used alcohol and added just enough merthiolate to color the alcohol. This actually happened at one hospital one time within the last year, and it took a 50 per cent dilution of pontocaine solution with the antiseptic to bring out any color change. Should such a contaminated solution happen to be injected intrathecally, about ¾ cc. of alcohol would be injected.

Measures to correct this real danger throughout the country should be instituted. A special directive could be sent to the superintendents or managers of all hospitals by the American Medical Association or the American Hospital Association, or both, apropos this subject. The pharmaceutical houses are most willing to cooperate. This proposal is being made, not because prominent anesthesiologists throughout the country are unaware of the situation, but because no general action has been taken. This handicaps the surgeon who gives his own spinal anesthetics in the smaller hospitals. He accepts the routine set-up given him and takes for granted that all equipment and drugs have been properly sterilized according to accepted safe techniques. The foregoing discussion shows that there has been no safe and accepted technique outlined for sterilization of spinal ampules.

It is proposed as a safe procedure, when ampules are sterilized in antiseptic solutions, that any antiseptic medium used for sterilization of ampules to be introduced intrathecally be a standard product. If the solution is prepared by the hospital, it should be prepared and colored according to formula. Such solutions should be stored in containers labeled, "*This antiseptic is safe for sterilization of ampules used in spinal anesthesia.*"

It is proposed that the criteria for the standardization of any of these antiseptic solutions as concerns the intensity of the color be that:

1. One drop of the colored antiseptic solution, when mixed with the contents of any ampule, gives a definite, intense, and lasting color.

2. The antiseptic solution should adhere to the outside of the ampules, whether wet or dry, after they are removed from the sterilizing container.

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Indications for and Results Following Exploration of the Common Bile Duct for Stones

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SUMMARY

Among 100 consecutive patients who had removal or drainage of the gallbladder and exploration of the common bile duct for stones, there were no serious, immediate or late complications and there were no operative deaths. Ninety-six of the 100 patients had stones in the gallbladder, in the common duct, or in both, and 52 of these patients had one or more stones in the common duct.

Ten patients died subsequently of unrelated causes. Six patients were lost to follow-up. Of the 84 patients whose present condition is known, 75 or 89 per cent have had a completely satisfactory result. Six more patients have minor residual symptoms, and for them the result has been classified as good. In three patients, the results were unsatisfactory. Cholangiograms taken before the removal of the T-tube showed residual stones in two patients. In each instance, the stone or stones have been subsequently passed and both patients are in excellent condition.

The many recent advances in surgical techniques and in the over-all care of patients have made it possible for most operations to be done with relative safety, if they are well executed under proper conditions.

The hands of a surgeon are readily trained to specific although very complicated tasks. The judgment which guides those hands comes from experience gained by the thoughtful elicitation and interpretation of the laboratory and clinical evidence leading to a logical diagnosis; correlation of this with the actual abnormalities found at operation, and an unprejudiced analysis of the late results. Surgical judgment can never reach the perfection of technical skill, yet that is a goal toward which surgeons should constantly work.

Operations upon the biliary tract are challenging but in most cases not too difficult; fraught with hazards for the careless or poorly trained, but safe (if operation can be safe) in experienced hands.

However, deliverance of the patient from the operating table followed by a satisfactory convalescence does not assure a successful operation.

What are the indications for cholecystectomy? Is it better judgment to remove gallstones which are giving few or no symptoms, or to delay removal until definite symptoms arise? When should the common duct be explored and under what conditions are stones most commonly found?

In an effort to obtain the answers to these and other questions, careful study was undertaken of two small groups of patients all of whom were personally observed by the authors and operated upon by one of them. In order to get a comprehensive concept of the problem as a whole, 200 consecutive operations upon the gallbladder or common duct for conditions other than carcinoma or stricture were studied. The clinical charts of the patients were studied with great care. The indications for operation in each case were reviewed and a careful analysis made of the findings at operation and of the immediate and late results. Similarly reviewed were 100 consecutive cases in which the common duct was opened and explored. It is the latter study which will be considered here in greater detail.

INDICATIONS FOR OPERATION

As preface to discussion of problems of the common duct, a brief resume of broader aspects of operations upon the biliary tract may be helpful. Every operation should have a definite objective. The objective of an operation upon a patient with a "surgical" gallbladder is: (1) to remove a lesion which is jeopardizing the patient's life; (2) to remove a potential hazard; or (3) to relieve the patient of symptoms.

Specifically, operation is indicated for:

1. Definite recurrent attacks of pain which are typical of so-called gallstone colic when stones or abnormal function of the gallbladder are demonstrated by cholecystogram.
2. Symptoms coming in attacks which are suggestive, but not characteristic of gallstone attacks, when gastrointestinal and other studies do not reveal an adequate cause and when the gallbladder does not fill after ingestion of the dye. In a doubtful case, the examination should be repeated.
3. Occasionally, in a patient with typical attacks of gallstone colic, when the patient is seen in one of these attacks by his medical advisor or by the surgeon and a definite clinical diagnosis of gallstone colic is made, but where x-ray examination of the gallbladder in the standing as well as the horizontal position shows a gallbladder which fills and empties normally without evidence of stones. Kidney and gastrointestinal studies should be negative. This

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combination of findings is uncommon and therefore operation under these conditions should be done infrequently.

4. Gallstones with or without minor symptoms which have been definitely demonstrated in a patient who is a good surgical risk.

5. Recurrent attacks of chills and fever with or without pain and/or jaundice associated with abnormal cholecystograms (usually failure to fill) and no other demonstrable cause for the attacks.

6. Recurrent attacks of pain and/or jaundice, chills, and fever after cholecystectomy.

7. As an elective procedure following an attack of pancreatitis.

It is at once apparent that if the above criteria are followed, most of the patients operated upon will have one or more stones and this is borne out by an incidence of stones in 93 per cent of the previously mentioned series of 200 patients and 96 per cent of the 100 patients whose common ducts were explored.

PRINCIPLES OF MANAGEMENT

Jaundice. The preparation for operation of the patient with jaundice is well standardized and need not be commented upon. It is sufficient to say that for the patient with complete obstruction, a period of preparation beyond five to seven days rarely adds to the safety of operation and may be detrimental to the outcome. Conversely, it is unwise to hasten operation for the patient who is beginning to show color in the stools with evidence of diminishing jaundice.

Anesthesia. In the bad-risk patients, the method and agent for producing anesthesia should be carefully selected in relation to the problem which the patient presents. In general, however, the authors' own preference is for well given nitrous-oxide-oxygen-ether. For many years it has been the authors' custom to block the operative field with one per cent procaine to which are added three drops of epinephrine to each 30 cc. of solution. With few exceptions, all the patients in this series have had this form of anesthesia.

Incision. The importance of a properly selected incision in any abdominal operation cannot be overemphasized. The best incision for any operation is that incision which will permit the best exposure for the more difficult part of the procedure. The most important exposure in an operation upon the biliary tree is the exposure of the common duct; the best exposure of that region in most patients requires an incision which extends high in the right epigastrium. In most cases the authors employ a high muscle-splitting incision. For many of the patients with a broad abdomen and a wide costal arch, a subcostal incision is used. It is felt that while the latter incision is closed more easily and gives an excellent end result, a longer incision must be made in order to insure the same degree of exposure that is obtained with the rectus-splitting or paramedian incision.

Cholecystectomy versus cholecystostomy. The authors reserve cholecystostomy for the rare patient with acute cholecystitis who is desperately sick and for whom the simplest possible surgical procedure is indicated, for the patient with anatomical or pathological features so altered that to remove the gallbladder might result in injury to the common duct, and for the occasional poor-risk patient with common duct stones. In such cases, the gallbladder is opened and the stones removed. The common duct is then opened and emptied of its contents. If, after completion of the common duct exploration, the condition of the patient will then permit the removal of the gallbladder, it is carried out. If there is any question about the advisability of the additional surgical procedure, cholecystostomy rather than cholecystectomy is the procedure of choice.

The importance of accurate dissection in the course of a cholecystectomy cannot be stressed too often. The many abnormalities in relation to the common and cystic ducts require accurate visualization of the cystic and common ducts as well as of the cystic vessels before clamps are applied. No surgeon is so experienced that a moment of carelessness may not result in irreparable damage. Whether the gallbladder is removed from above downward, or from below upward, may well be a matter of preference. Early dissection of the cystic duct to its junction with the common hepatic duct and early application of the clamp, together with early division of the cystic vessels, make for less bleeding and prevent the squeezing of stones from the gallbladder into the common duct during the manipulation of operation. On the other hand, the authors strongly believe that careful dissection from the fundus of the gallbladder toward the cystic duct, keeping the dissection close to the gallbladder, is the safest method of removing this viscus. In any case in which the relations between cystic vessels, cystic duct and common duct cannot be clearly defined, or in which inflammatory reaction makes dissection difficult, removal of the organ from the fundus toward the cystic duct is preferred.

Exploration of the common duct. Indications for opening the duct will be discussed later. While the dilated duct can be explored with a high degree of safety, this is not true of the duct of normal size. Every effort should be made to lessen the number of negative explorations. The authors prefer to open the first portion of the common bile duct rather than the common hepatic duct unless the cystic duct joins the common hepatic duct very low. An effort is made to select a relatively bloodless area. A curved sharp-pointed blade on a long handle is used and each edge of the opening is supported by a fine silk or cotton suture. The stump of the cystic duct is not tied until the surgeon is assured, usually by passage of a probe, that no stone has been left in it. The authors have a definite routine for exploration of the duct. Careful palpation is carried out even though ability to feel a stone which may be present is doubtful. Once opened, and palpated, the duct is carefully explored with ureteral stone forceps having different curves. If no stone can be palpated and if no stone or no detritus is picked up in the grasping surface of the forceps, the next maneuver is to pass a No. 14 or No. 16 whistle-tip catheter in each direction, flushing vigorously with normal saline solution in order to create a forceful back-flow of the solution through the opening in the duct when the tube is hastily withdrawn. Not infrequently, this maneuver is rewarded by the washing out of one or more stones. This is particularly so in the case of smaller stones, but even those up to a diameter of 1.0 cm. which previously have been missed with the forceps may be so changed in position that further manipulation will make it possible to grasp and remove them.

If the duct is large enough to admit a finger, the opening into it is enlarged so as to make this possible and the inside of the duct is then explored by introducing the forefinger (or, if necessary, the fifth finger) into the duct and carefully exploring in each direction. When this can be done, it gives the best possible assurance that no stones have been left in the common hepatic or common bile ducts. Following these maneuvers and reexploration with the grasping forceps, but not until then, a probe is passed through the ampulla. Following the passage of the probe, the ampulla is gently dilated with the flexible graduated olive-tipped dilators (Baké). The size to which the ampulla is dilated is dependent upon the problem at hand. If there have been many stones, if the duct is already large, and dilatation is carried out easily, it may be continued up to 10 or 11 mm. In most instances, however, dilatation is rarely carried beyond the diameter of 7 or 8 mm. It is extremely important that this dilatation be done very gently, although, at times, if the ampulla is very rigid, moderate force may be required. Although aware of the hazards which have been reported in connection with this procedure, the authors are not convinced that the rare case of pancreatitis following this manipulation is the result of the dilatation. While the advantages of the procedure admittedly are open to question, it is believed that it aids in the clearing of the common duct at the time of operation and that it increases the ease with which any stone which is left may be subsequently passed.

Following the dilatation of the ampulla, the largest whistle-tip catheter that will go into the duct is inserted and normal salt solution is forced through the duct into the duodenum in the hope of washing any retained stone or fragment through the dilated ampulla into the duodenum. As a final maneuver, a small dilator or probe is passed into the duodenum, and with this as a guide the duct is again carefully palpated between the thumb and forefinger. This maneuver can be most easily done if the surgeon stands on the left side of the table. A T-tube, with the arms shortened to about 2 cm., is then placed into the duct and the opening closed snugly around it with interrupted sutures of No. 0000 chromic catgut.

Drainage. Because of the rare case in which there is profuse and unexpected discharge of bile following operation, drainage is provided routinely following cholecystectomy. To assure adequacy of drainage, each drain is as carefully selected and placed as it would be in any case of known infection. A cigarette drain with a diameter of about 1.5 cm. is used; the gauze comes to but does not extend beyond the end of the flexible rubber wicking and its tip is placed at the foramen of Winslow. The drain may be brought out either through the wound of operation or through a stab wound in the right flank. In most cases, the drain is brought out through that portion of the wound that offers the most direct outlet. It is not always easy to so place a stab wound that the tip of the drain may not be displaced by the liver edge when the patient is changed from the horizontal to the upright or sitting position. This is avoided when the drain is brought through the wound because it lies in the cleft between the right and left lobes of the liver.

Postoperative management. The Levin tube, which is routinely placed into the stomach before anesthesia is started and which is kept on suction during and subsequent to the operation, is usually removed on the following morning. Fluids are given according to indications and limitations. Except in hot weather when there may be considerable fluid loss, the intravenous infusion of 5 per cent dextrose in distilled water is used in such quantities as to assure a total fluid intake of 2,000 cc. to 2,500 cc. daily. After the first day, diet is increased as tolerated. The patient usually sits on the edge of the bed on the day following operation and on the second day is encouraged to stand. Patients are not permitted to sit in a chair during the early days after the operation, but are encouraged to be either out of bed on their feet, or in bed. As bed patients, they are instructed to take ten deep breaths each hour and to do bicycle exercises with their legs. The cigarette drain is loosened six days after operation and is removed on the seventh.

If the common duct has been drained, the biliary tree is visualized by roentgenogram following the injection of about 20 cc. of Diodrast through the T-tube. This would usually be done on the eighth day of an uneventful convalescence. If there has been no undue reaction to the injection of the Diodrast and if the cholangiogram is a satisfactory one, the tube is removed on the following day. If one or more shadows suggestive of stones or obstruction to the flow of dye into the duodenum are noted, the examination is repeated after 48 to 72 hours. Prolonged drainage following choledochostomy for stones is rarely used unless there is evidence of pancreatitis. As there seems to be no reason for leaving the tube in the duct if a residual stone is seen or if there is an apparent obstruction to the flow of bile in cases in which the ampulla was dilated as a part of the surgical procedure, the tube is removed even though the abnormality is again demonstrated on the reexamination. Patients are usually discharged nine or ten days following operation.

ANALYSIS AND DISCUSSION OF DATA

One hundred consecutive primary operations involving the common bile duct were carried out in the five and one-half years ending December 31, 1946. While the number of cases studied is too small to be of statistical value, it is believed that the opportunity to analyze and follow a personal series offers certain advantages over a statistical study of a large impersonal group and it is suspected that a statistically adequate number of cases would give results not unlike those here reported.

Sex and Age. Seventy-eight per cent of the patients were females. Eighty per cent were 50 years of age or over and 14 per cent were between 70 and 82 years of age.

Associated Diseases. Forty per cent of these patients had one or more complicating systemic conditions. Diabetes mellitus was most common (26 per cent); cardiovascular disease and hypertension were present in 16 per cent of the patients; pulmonary tuberculosis was present in three patients, asthma in one, portal cirrhosis in one and kidney disease in one.

Operations Performed. The operation of choice, cholecystectomy and choledochostomy, was performed in 95 of the 100 patients. Cholecystostomy was carried out in four patients because of technical difficulties, poor condition of the patient, or a combination of these factors. In the other patient, the gallbladder was not removed but was used to repair a large defect in the common duct due to erosion from a large stone in the common duct.

Associated Local Pathologic Changes. Local complications, secondary to or associated with biliary tract disease, were present in 29 of these patients. Pancreatitis, subacute (in seven) or chronic (in three) was the most common complication. In addition, one patient who entered the hospital with clinical and laboratory findings of acute pancreatitis was treated expectantly during the acute phase of the disease and later operated upon with the diagnosis of pancreatitis confirmed, but no stones were found. Eight patients were operated upon with an acute (one) or subsiding (seven) cholecystitis. Stones were present in the gallbladder in all of these patients and in the common duct of three.

Six patients had cholangeitis with associated stone or stones. One had a pericholecystic abscess and in five a fistula was present between the gallbladder and an adjacent viscus. In three cases, a stone had eroded through the gallbladder, but not yet through into another structure. There was one case of obstruction of the sigmoid colon from a large stone.

Complications. There were 13 postoperative complications, but no deaths. Four of the complications were directly referable to the operation: Residual common duct stones (two); wound infection (one); and one patient had a large encysted collection of bile requiring drainage.

The nine complications not directly related to the local procedure were: Four patients had thrombophlebitis (one with sublethal pulmonary infarct); two patients had heart failure; one had atelectasis, one otitis media and one thrombosis of an arm vein following an intravenous infusion.

Incidence and Location of Stones. Stones were found at operation in 96 per cent of the patients, as follows: Gallbladder only, 44; common duct only, 4; gallbladder and common duct, 48.

The four cases in which stones were not found at operation deserve additional comment:

CASE REPORTS

Case 1: A 51-year-old woman had recurrent episodes of epigastric pain which were not typical of gallstone attacks. Cholecystograms revealed normal gallbladder function and no evidence of stones on two occasions. Gastrointestinal studies were repeatedly negative. The patient was operated upon with a diagnosis of "abdominal pain of undetermined origin." It was explained to the patient and to the referring physician that operation was exploratory in nature to rule out the biliary tract as a possible cause of pain and probably would not explain or relieve the pain. At operation, no abnormality was found. The gallbladder was removed and the common duct explored with negative findings. Cholangiograms were negative. The patient's symptoms persisted. One year later a duodenal ulcer was demonstrated by roentgenologic studies.

Case 2: A woman 57 years of age entered the hospital because of frequent attacks thought to be typical of gallstone attacks. Ten years before, she had had jaundice, chills and fever associated with upper abdominal pain. She had had the last of six or seven severe attacks of pain with chills and fever to 103° F. six weeks before admission. Cholecystograms did not demonstrate a gallbladder shadow. The preoperative diagnosis was choledocholithiasis. The following is taken from the operative note: "The gallbladder was thickened and markedly contracted. The cystic duct was about the diameter of a normal common duct. There was a thickened dilated common duct. There was no detritus and no stones could be felt in the duct." Saline injected into the duct ran freely into the duodenum "with practically no resistance." The ampulla was easily dilated to 10 mm. Cholangiograms were normal. The follow-up on this patient revealed that she had two episodes of painless jaundice a few months after operation, but she has been completely free of symptoms for the two years since operation. She feels that the operation completely relieved the pain. It is believed that a common duct stone was passed at the time of the last attack.

Case 3: A 48-year-old man with diabetes mellitus entered the hospital with findings typical of severe acute pancreatitis. The patient was treated expectantly and an elective operation was carried out. Previous cholecystograms elsewhere had been interpreted as showing a pathologic change in the gallbladder. The preoperative diagnosis was: "Subacute cholecystitis; acute pancreatitis, subsiding." Subacute pancreatitis and cholecystitis without stones were found at operation. The patient has been free of symptoms for the three years subsequent to operation.

Case 4: A 54-year-old woman entered the hospital six months before operation with painless jaundice. A diagnosis of acute hepatitis was made. The patient responded well to treatment and was discharged. Six weeks later, cholecystograms showed good function of the gallbladder but there were many negative shadows which were interpreted as gallstones. This was the only indication for operation, as the patient was having no symptoms. A normal-appearing gallbladder without stones was removed. No stones were found in the common duct. Liver biopsy revealed "slight bile stasis and periportal chronic inflammation of the liver." The patient has been well and free of symptoms since operation.

Indications for Exploring the Common Bile Duct: The following symptoms, singly or in combination, have been considered by the authors as suggestive of common duct stones:

1. Jaundice, usually following pain.
2. Chills and fever (recurrent).
3. Frequent attacks of pain (intervals of 14 days or less.)

It has been the authors' custom to explore the common duct if, in addition, one or more of the following conditions is found at operation:

1. Small stones and dilated cystic duct.
2. Dilated common duct.
3. No stones in the gallbladder when the history of gallstone attacks was definite.

The cases under study have been carefully analyzed in an effort to determine the symptoms most suggestive of common duct stones, either before or during operation. Table 1 summarizes the results of this study.

Table 1.—*Indications for Exploration of Common Bile Duct—100 Consecutive Primary Operations*

Indication	Stones in Common Duct	Stones in Gallbladder Only	No Stones	Total
Jaundice	7	3	....	10
Chills and fever	1	1	....	2
Frequent attacks of pain	9	4	1	14
Jaundice plus chills and fever	3	0	....	3
Jaundice plus frequent attacks	16	2	....	18
Chills and fever plus frequent attacks	2	0	....	2
Jaundice, chills and fever plus frequent attacks	2	0	....	2
Operative findings only	9	32	2	43
Subacute pancreatitis	2	2	1	5
History not available	1	....	....	1
Totals	52	44	4	100

A careful study of the cases from which the table is made reveals the uncertainties of making an accurate diagnosis of common duct stone. In 50 patients who had one or more of the three symptoms mentioned, 40 (80 per cent) had common duct stones, but in nine of 43 patients who had none of these symptoms, one or more stones were found in ducts which were explored because of a combination of one or more of the local abnormalities previously listed. It is not known how often the common duct was not opened when stones were present, but study of the 200 unselected cases suggests that in that series the incidence was very small. It is of interest that the value of a definite history of frequent attacks of pain, as suggested by the late Dr. Daniel Fiske Jones, was comparable to the value of the more generally accepted history of jaundice. It appears important to accept the possibility of common duct stones in the absence of history of jaundice. (In this series, 45 per cent of patients with stones gave no history of jaundice.) Importance is given also to careful observation of local findings at the time of operation and to the value of coordination of the preoperative findings with the conditions found at operation in the final decision for or against exploration of the duct. It is believed that if this is done, it will be possible to select with an adequate margin of safety those ducts which should be explored.

LATE RESULTS

Each of the 100 patients operated upon in this series left the hospital apparently in satisfactory condition. Ten have died subsequently of unrelated causes. Six have been lost to follow-up.

Of the 84 patients whose present condition is known, 75 (89 per cent) had completely satisfactory response to operation, being relieved of all symptoms. Six other patients, although relieved of the most significant symptoms, have mild residual fullness or distress following the ingestion of certain foods. These patients are considered as having a good, but not completely satisfactory, result.

For three patients the results were completely unsatisfactory. One of these (Case 1) has already been referred to as the patient upon whom operation was carried out because of persistent, intense pain. There were no stones at operation and one year later a duodenal ulcer was finally demonstrated by roentgenologic studies. The second patient, a 53-year-old obese woman, had a cholecystectomy and choledochostomy. There was one stone and some detritus in the gallbladder. Nothing was found in the common duct and cholangiograms taken prior to discharge showed a normal biliary tract without evidence of defect. In addition to the gallstones, she had a hiatus hernia of moderate size. In retrospect, it is quite probable that the symptoms were due to the hiatus hernia and not the gallstones. The third patient with unsatisfactory results was a very obese 59-year-old woman in whom gallstones had been demonstrated by previous x-ray studies, but for whom operation was not advised because of the extreme obesity. The attacks became of such frequency and so severe, however, that operation became imperative. The gallbladder contained a number of stones, varying in size from 0.1 to 1.5 cm. in diameter. In addition, there was a great deal of "mud." The common duct was neither dilated nor thickened. There were no stones in it, but a good deal of the so-called mud was present. A cholangiogram was not done before the common duct tube was removed. The patient seemed to be in good condition when discharged from the hospital about four weeks after operation. It is quite probable that a stone was left in this patient's common duct, since recurrent attacks of severe pain continued over a period of nearly two years. For the past three years, however, there have been no acute attacks and the only symptoms at this time are those referable to extreme obesity.

The subsequent course of each of the six patients with abnormality shown by cholangiogram has been particularly instructive. It is believed that each of the two patients in who retained stones were demonstrated has passed these stones spontaneously. The three patients in whom obstruction was reported at the ampulla have had no subsequent trouble. It is believed that the retarded flow of radiopaque fluid, indicating obstruction, was due to spasm of the sphincter rather than to a real mechanical obstruction. The sixth patient, with the possible narrowing at the junction of the hepatic and common ducts, probably had no real abnormality.

1180 Beacon Street.

NOTE: Since the completion of this study, one of the patients reported as having a completely satisfactory result has been reoperated upon. At the first operation, the gallbladder had been removed. It contained two stones, 1.5 cm. in diameter. A dilated common duct was very carefully explored. Thick detritus but no stones were found. Cholangiograms before discharge showed slight delay in flow of opaque material at the ampulla, but good visualization of the biliary tree and no negative shadows suggestive of stone. The patient was well for about 15 months, and 17 months after leaving the hospital she was reoperated upon. Three stones, the largest 1.5 cm. in diameter, were removed from the common duct.

* * *

A Note On the Incidence of Rheumatic Fever in Los Angeles

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SUMMARY

Nationwide campaigns to alert the public to the dangers of rheumatic heart disease carry the hazard that parents in some localities may become more alarmed than is warranted by the local rate of incidence of the disease; and the alarm of the parent may harm the child.

In such circumstances physician and patient alike might be reassured if it could be ascertained that the incidence of rheumatic fever in a given community was relatively low.

Application to the Los Angeles area of a statistical formula worked out from Coombs' data on the incidence and death rate from the disease in England and from Ash's data in Philadelphia, gave indication that the incidence of rheumatic fever in all age groups in Los Angeles is approximately 68 new cases a year—a relatively favorable figure in a population approaching two million.

Any campaign to acquaint the laity with knowledge concerning disease carries the danger of misinterpretation. This is particularly true if a disease is characterized by geographical variations in incidence and in symptomatology. Thus the dissemination of such information as may be necessary to alert the public to the dangers of rheumatic fever in the state of New York would create unnecessary apprehension and needless worry among the population of the state of New Mexico, where the disease is comparatively rare. Additional confusion results from the absence of a specific test for the diagnosis of mild cases of rheumatic fever.

Recent publicity has placed emphasis on many minor signs and symptoms which may or may not be related to the rheumatic state. Prolonged minimal elevation of the temperature, easy fatigability, lack of appetite, failure to gain weight, anemia, nose bleeds, and attacks of tonsillitis are now subjects of tremendous concern. If, in addition to the above symptoms, some physician has mentioned the presence of a "heart murmur," the damage is practically irremediable. In such circumstances parent and child go from office to office and clinic to clinic, rarely reassured by a non-cardiac diagnosis and frequently confused by differences of medical opinion. The bad effect on the child goes without saying.

This situation, greatly aggravated by recent propaganda, was discussed by Coombs[3] 25 years ago in his authoritative monograph on rheumatic heart disease. He states: "It is such a serious matter to overlook a case of heart disease that many men go to the opposite extreme. They encounter something which they cannot quite explain away to their own satisfaction—a murmur, or some pulse irregularity—and, rather than fail to be the first in recognizing and proclaiming the presence of heart disease, they jump into almost as grievous an error in condemning an innocent person to inactivity by labelling him as a cardiac invalid. This is particularly to be deprecated in the case of children."

A knowledge of the incidence of rheumatic fever in any community is of great aid to the physician from a diagnostic point of view. Moreover, a low incidence enables him to allay the fears of the family. The variations in incidence become more apparent if one compares the death rate per 100,000 population due to rheumatic fever for all age groups in some widely separated areas. In 1941 the rate in Connecticut was 15.3 per cent, in Minnesota 20.6 per cent, and in New Mexico 6.6 per cent. A complete review of the geographical influences is contained in a recent survey by Collins.[2] The variations in symptomatology may be illustrated by the fact that whereas the presence of abdominal pain rightly provokes suspicion of rheumatic fever in children residing in Baltimore, Philadelphia and New York, it rarely signifies rheumatic infection in children who live in the cities of the southwest. During the past few years the distribution of information pertaining to diseases of the heart has produced so much anxiety among many of the families in Los Angeles that it seems necessary to attempt an estimate of the incidence of the disease in that area.

It is at once obvious that a complete record of all cases cannot be obtained, for many are never reported, some are erroneously diagnosed and others are controversial borderline cases in which the diagnosis remains in doubt. This analysis, therefore, was limited to the number of deaths due to rheumatic fever in individuals under 19 years of age during the five-year period 1939-1943. From this figure it is possible to estimate the incidence of the disease, for according to Coombs, 11.2 per cent of the cases of rheumatic heart disease in the childhood group are fatal within five years after the onset. The case fatality rate reported by Coombs in a ten-year survey is a little less than the figure obtained recently by Ash[1] in a study of rheumatic fever in Philadelphia.

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The records were obtained from the local hospitals and the figures were checked at the Los Angeles Vital Statistics Bureau. Each case was reviewed with respect to the generally accepted criteria for the clinical or pathological diagnosis of rheumatic fever. Limiting the study to cases in which the patient was under 19 years of age eliminated to a large extent the possibility of death from other causes. Moreover, it is generally believed that in approximately two-thirds of all cases of rheumatic fever the onset is during or prior to the fifteenth year of life. The choice of the years 1939 through 1943 was fortunate, as the huge movement of people about the country during the latter years of the war influenced the local incidence of many diseases. Cases in which rheumatic fever developed prior to residence in California were not included. This avoided the error of confusing a recurrence of infection with prolonged activity of the original attack. There were six children during this period who contracted rheumatic fever prior to residence in California and subsequently died here. Two cases in which the patients were born outside the state were included, however, because from the histories it was determined that no rheumatic infection had occurred previous to residence here. One of these two patients, who died at five years of age, had resided in Los Angeles since the age of six months, and the other, who died at 13 years of age, had resided in Los Angeles since the age of three. All of the remaining patients had lived their entire life in California. A total of 25 deaths occurred within the five-year period: Six in 1939, four in 1940, two in 1941, five in 1942, and eight in 1943.

Autopsies were performed in 17 cases. All the autopsy material showed one or more of the following findings: Aschoff bodies, typical rheumatic valvular vegetations; mitral stenosis excluding subacute bacterial endocarditis; and pancarditis with no bacteriologic evidence of pyogenic organisms or of tuberculosis. A one-year-old child who died with acute myocarditis was not included because microscopic sections at necropsy showed no evidence of Aschoff bodies or of valvular disease and clinically there were no characteristic extracardiac rheumatic manifestations.

In the seven cases in which autopsies were not done, one or more of the following findings were present either in the history or on examination: Migratory polyarthritis with acquired cardiac disease; Sydenham's chorea with acquired cardiac disease; recurrent rheumatic infections with cardiac involvement; a double mitral murmur associated with a broad notched or high P wave and a pathologic degree of right axis deviation; and acquired cardiac disease with one or more of the following manifestations: fever, persistent tachycardia, leukocytosis, subcutaneous nodules, anemia, and an elevation of the sedimentation rate on repeated observations.

All of the 25 patients were hospitalized one or more times and received prolonged bed rest followed in some instances by brief care at a convalescent home. The usual treatment with salicylates, digitalis, transfusions and sedation was employed as the indications appeared. The majority were patients in the medically indigent group and approximately half of them were Mexicans. A few patients died during what appeared to be a prolonged initial attack of rheumatic heart disease; the remainder died with recurrences of the infection. Eighteen patients died between the ages of six and 13 years. Four patients were under six years of age and three were over 13 years of age at death.

On the basis of Coombs' estimate the average case fatality rate of five deaths per year reflects an average annual incidence (new cases) in this age group of about 44 cases. Since Coombs' statistics were based on 218 cases of undoubted cardiac infection and inasmuch as he encountered approximately one case in which there was suspicion of rheumatic fever to every two cases in which the diagnosis was incontrovertible, an additional 22 "suspicious cases" might safely be estimated to occur annually. Unmistakable valvular fibrosis developed in the course of ten to 16 years after the onset in only one-third of the "suspicious cases" in Coombs' series. Accordingly, the addition of one-third of the number of "suspicious cases" increases the annual incidence in this age group to 51 cases. If one accepts the assumption that in two-thirds of all cases of rheumatic fever the onset is in this age group, then the addition of a third of 51, or 17, brings the total number of new cases annually, in all age groups, to approximately 68.

The results are subject to criticism on three counts:

1. It appears likely that a milder type of the disease exists in Los Angeles and hence a case fatality rate of 11.2 per cent may not be applicable.
2. It is possible that persons in whom the disease developed while they resided in Los Angeles subsequently died in other states or in other cities within California.
3. In the last two or three years there has been an increase in the population of Los Angeles and a trend toward a semi-industrial character, both of which might bring an increased incidence of rheumatic fever.

Nevertheless, in a city with a population approaching two million, the apprehension concerning rheumatic fever appears out of proportion to the incidence of the disease.

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Complications of Gold Therapy and Their Management

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SUMMARY

Early recognition of manifestations of gold intoxication is important to the treatment of such complications. Proper dosage schedules should be followed and blood and urine frequently examined.

Most toxic manifestations subside, but those which become worse or which do not subside on withdrawal of the gold should be treated with BAL (2, 3-Dimercaptopropanol).

BAL has a toxicity of its own and is painful on injection. Since BAL combines with gold, the therapeutic effect of the metal may be lost after such treatment.

The beneficial effects of methionine and methionine plus BAL in treatment of experimentally induced gold intoxication of animals suggests such combined therapy in the treatment of clinical complications of gold poisoning. A schedule of combined antidotes is outlined.

WHILE polypharmacy is still the rule in the treatment of rheumatoid arthritis, many physicians advocate the therapeutic use of gold as the medicament of choice.[3, 10, 18, 20] As no causative agent has been isolated, the use of gold in this disease is purely empiric (stemming largely from extensive use of the metal by Forestier[9] 20 years ago) but this form of treatment is evidently here to stay until some better or more rational therapy is developed. Unfortunately, gold like other heavy metals and metalloids must be used with considerable caution due to its toxicity.

The purpose of this presentation is to outline the toxic complications of gold therapy and the management of them. Six case reports are included to illustrate the course and management of gold intoxication.

TOXIC COMPLICATIONS

The toxic complications of gold therapy may be divided into two general categories: (1) initial hypersensitivity reactions, and (2) cumulative toxic manifestations. There is no good evidence that hypersensitivity reactions following the use of gold are more common than those following use of other metals and metalloids. These hypersensitivity reactions include rapid decrease in leukocytes with the development of agranulocytosis and decrease in platelets with the development of purpura. Comroe[5] mentions the occurrence of a "true anaphylactic" reaction following the injection of gold, but true sensitization has not been demonstrated experimentally. Soluble gold salts are rapidly reduced to the metallic state which is poorly absorbed. Sollmann[21] suggests that the immediate reactions of a vasomotor character, presumably after intravenous injection, may be due to flocculation of the reduced gold. Minute particles of metallic gold have been demonstrated in the kidneys, spleen, and liver of animals treated with gold sodium thiosulfate intramuscularly, but without immediate systemic reaction.[14]

In general the reactions of most concern to the clinician are those which occur after the injection of a total of 0.4 to 0.8 gm. of a gold salt. These reactions include cutaneous erythema, generalized itching, scaling dermatitis of the eyelids (Case 6), exacerbations of fungus infections of the skin (Case 3), chronic herpetic infections, the development of small furuncles (Case 4), and pruritic papular eruption (Case 2). An extremely rare manifestation is the development of chrysiasis, which is a permanent discoloration of the skin following the extended use of gold. This is comparable to discoloration after the prolonged use of silver salts. The oral manifestations include metallic taste, ulcerative stomatitis (Case 1), sore tongue and loss of taste. The gastrointestinal manifestations include nausea, occasional vomiting and epigastric distress, hiccough, diarrhea, and, rarely, ulcerative enteritis. The renal manifestations include albuminuria, hematuria, and uremia. Now and then, late in the course of medication, there is transitory glycosuria.

Occasionally a patient may report precordial discomfort, and not infrequently following the first few injections of gold there is a slight fever for 24 to 36 hours together with an exacerbation of joint pains and stiffness. After five or six injections these symptoms usually disappear, presumably as a result of tolerance for the gold, for it is well known that animals develop an increased tolerance for certain heavy metals when repeatedly injected. If a patient does not cease having the immediate reactions the medication should be discontinued (Case 5). During the course of medication eosinophilia occasionally makes its appearance, and if the eosinophils exceed 15 per cent it is desirable to discontinue therapy until the eosinophil count has returned to normal (Case 2). A rise in eosinophil count often precedes the development of papular dermatitis.

Hepatic manifestations of gold poisoning include jaundice and acute yellow atrophy, but these complications are rare.

The respiratory manifestations include hemo-

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ptysis, epistaxis and cough, but these also are infrequent.

From the listing of so many toxic possibilities the impression may be gained that perhaps many observers have ascribed to gold salts toxic manifestations which are not entirely due to the gold. Competent workers in the field of rheumatic diseases report principally dermatitis and stomatitis as toxic manifestations and less commonly exfoliative dermatitis and purpura, and even more rarely, agranulocytosis. Aplastic anemia has occasionally been reported, but oftentimes other medication may have been responsible. Cecil[3] noted toxic reactions in 42 per cent of 245 cases, which may be broken down as follows: skin reactions, 52 cases; gastrointestinal symptoms, 18 cases; stomatitis, 13 cases; exfoliative dermatitis, 11 cases; purpura and marked albuminuria, three each; jaundice and bronchitis, two each; and agranulocytosis, one case. Other clinicians report different percentages depending on the product used and the dosage schedule, but the relative frequency of the reactions is about the same in all series.

There is no certain way of predicting which patients will develop toxic reactions, but there are certain conditions in which the use of gold therapy is contraindicated. These include history of agranulocytosis, purpura, disease of kidneys or liver, severe diabetes mellitus, pregnancy (gold passes through the placenta), congestive heart failure, hemophilia, severe anemia of hemorrhagic tendency, eczema, and colitis. Psoriasis, which occasionally is seen in patients with rheumatoid arthritis, is not a contraindication to gold therapy, although patients who have psoriasis do not usually respond as well as those who have uncomplicated cases. Fortunately the other disease states mentioned as contraindicative do not often occur in conjunction with rheumatoid arthritis. Many physicians are loath to use gold in the treatment of childhood rheumatoid arthritis (Still's disease) or in rheumatoid arthritis in elderly patients; however, there is no sound pharmacological evidence that the very young or the very old tolerate gold less well than others.

Some instances of death following the use of gold have been reported.[1] Such fatalities have been rare, and perhaps no more common than after the use of other heavy metals and metalloids in other conditions. Women seem to be about eight times more likely to develop gold poisoning than men.[5] This is a fact of some interest, since the principal clinical use of gold is in a disease which is three to four times more common in females than in males.

MANAGEMENT OF GOLD TOXICITY

The best way of managing the complications of gold poisoning is in preventing them by the proper administration of gold salts. A suggested course of medication using either sodium aurothiomalate (Myochrysine) or aurothioglucose (Solganol-B) is to give 10 mg. intramuscularly once weekly for three or four doses, then 25 mg. weekly to a total of 150 to 200 mg., followed by weekly doses of 50 mg. to a total dose of 1,200 to 1,400 mg. At this point, if the arthritis appears to be under control and no toxic manifestations due to gold are evident, treatment may proceed with 50 mg. given every two or three weeks until a total of 1,800 to 2,000 mg. is reached. Usually at this point the interval between injections can be increased to four to six weeks, the frequency depending upon the symptomatic response. Gold sodium thiosulfate has no known therapeutic advantage over these other water-soluble compounds, and intravenous use of the drug is, therefore, to be discouraged because of the potential danger inherent to all intravenous medication. Before and after the first injection of gold, a count of the blood cells should be made; and thereafter, every two to four weeks the blood and urine should be examined. Prior to each injection of gold the patient should be questioned carefully for any evidence of gold poisoning, including dermatitis, pruritus, purpura, stomatitis, nausea, vomiting, jaundice, and diarrhea. Liver function tests are advisable prior to gold therapy, especially if damage of the liver is suspected.

When patients under treatment with gold salts have mild toxic reactions, such as itching, small areas of papular dermatitis, mild stomatitis, transitory increase in joint symptoms, and slight fever following injections, it is not necessary or desirable to use BAL (2, 3-Dimercaptopropanol) at once. It is preferable to stop the administration of gold and observe the patient carefully for several weeks. Should the manifestations of intoxication become steadily worse, treatment with BAL should be instituted. If the signs of intoxication disappear during the interval of observation, gold may be resumed cautiously with smaller doses or sometimes a change to another preparation. If on resumption of chrysotherapy the toxic manifestations flare up again, it is probably best to abandon the use of gold for several months before trying it again. Itching may be treated with a measure of success with the antihistamine drugs—diphenhydramine, tripelennamine and the like—by mouth and in ointments; these drugs do not, however, relieve all patients of itching. Penicillin lozenges apparently alter favorably the course of mild stomatitis (Case 6).

TREATMENT WITH BAL AND METHIONINE

Formerly little could be done for the toxic manifestations of gold, once they became definite. Now, however, it has been established experimentally and clinically that the use of BAL (2, 3-Dimercaptopropanol) has considerable merit in the treatment of the toxic complications of gold salts. Gold forms a chemical complex with BAL which is precipitated out of solution *in vitro*. In patients and animals the use of BAL promotes the urinary excretion of gold, probably in a complex form, and spares the kidneys, as has been shown histologically.[4, 7, 15, 19] There is some evidence that after gold has been in the body for a long time BAL will not as readily promote excretion of it, and this may have something to do with the physical state of the stored gold, which seems to be in a reduced insoluble form in various tissues.

Recently Gillmor and Freyberg[12] reported that, in rats, BAL had to be given simultaneously with gold to protect the renal epithelium and that BAL given after an interval of several days did not show a protective effect. However, in their investigations the animals were given excessive doses of gold. In man, on the other hand, Macleod[16] reported favorable results in the treatment of dermatitis, stomatitis, and hepatitis caused by gold. In Macleod's series of 15 cases BAL certainly altered favorably the course of the toxic reactions even though it was administered long after the gold had been first given.

BAL is not a perfect detoxicant for heavy metals, since it has a considerable toxicity of its own. MacNider[17] reported liver injury in dogs following the use of BAL in doses of 15 to 30 mg. per kg. of body weight. Graham and Hood[13] noted that BAL inhibited the action of insulin.[14] Others[8] have shown that in small animals it causes conjunctivitis, ataxia, rapid and then impaired respiration, and convulsions. In man, toxic symptoms have been noted at a dosage of 5 mg. per kg. of body weight. The symptoms included nausea, vomiting and headache, a burning sensation of the lips, mouth, throat and eyes, sometimes with accompanying lacrimation or salivation, and pain in the teeth; generalized muscular aches with burning and tingling of the extremities; and a sense of constriction in the chest with a feeling of anxiety.[22] These symptoms usually disappear in less than two hours. The injection of BAL is rather painful, and since the substance is administered intramuscularly in oil it may cause local necrosis and form a suitable nidus for bacterial growth if bacteremia is present.[2]

In view of the appreciable toxicity of BAL some less toxic compound would be desirable. Danielli[6] and associates report that BAL-glucoside may be such an agent. Also it has been shown[14] that methionine, a sulfur-containing amino-acid, added to the diet of white rats will protect the animals against lethal doses of gold sodium thiosulfate, and that, when used in combination with BAL, the protective effect is greater than when either substance is used alone. Methionine protects without increasing the excretion of gold, thus presumably blocking the toxic effects of gold by an unknown mechanism. Rats given 1 to 3 per cent methionine in their food survive lethal doses of gold sodium thiosulfate almost as well as controls treated with BAL. With doses of gold against which neither methionine nor BAL used alone will protect the animals, the combined use of these two agents permits the survival of significant numbers, females being protected to a greater extent than males. This form of combined treatment of the toxic reactions to gold has not yet been tried extensively clinically, but preliminary results showing significant reduction in mortality in animals indicate considerable promise when BAL and methionine are used concurrently.[14] As to promoting excretion of gold, use of methionine alone in four patients (other than those reported upon herein) did not do so, a result which accords with results in animals.

It is still too early to say whether patients treated with BAL for gold intoxication undergo a subsequent exacerbation of rheumatoid arthritis. It seems reasonable to expect, however, that such might be the case (Case 1). There is no reason why chrysotherapy may not be resumed subsequent to the successful treatment of minor toxic reactions. If gold therapy is resumed at a later date and gold salts are administered cautiously in smaller dosage the "control" of the arthritis may not be lost.

A regimen of treatment with BAL is suggested as follows: Inject intramuscularly 0.5 cc. of the 10 per cent suspension in oil as a test dose for BAL hypersensitivity. If no reaction occurs, follow with the administration of 0.025 cc. (2.5 mg.) per kg. of body weight at four-hour intervals for four to six injections daily during the first two days and then two injections daily for a period of ten days or until recovery. Since the injections are quite painful, 0.5 cc. of a 2 per cent procaine solution may be added. In conjunction with the BAL, 1 to 2 gm. of methionine may be given by mouth four times daily. For the treatment of exfoliative dermatitis the presence of a secondary infection of the skin must be considered, and, if possible, BAL should be injected through healthy rather than diseased or infected skin. The concurrent use of penicillin in such cases is beneficial. For control of pruritus, use of the antihistamine substances in ointments and by mouth sometimes provides a measure of temporary relief.

The following case summaries illustrate examples of gold intoxication and its management:

Case 1: Female, aged 63. Diagnosis: rheumatoid arthritis. After receiving 0.555 gm. Solganol-B (aurothioglucose) sore throat and mouth developed, with ulceration and bleb formation. BAL was given (10 per cent suspension in oil), 0.5 cc. and 1.0 cc. on the first day and 2.0 cc. on the second day. The buccal and pharyngeal lesions were much better on the second and third days and on the fourth day there was no visible ulceration other than a small healing ulcer on the under surface of the upper lip. After the last injection of BAL the patient had a "terrible headache" during which "even the individual teeth ached." The headache disappeared in several hours. A week later the joint pains returned. Two weeks later the joint pains were more severe and the left buttock was still tender at the site of the BAL injections. Three weeks later the patient was given Solganol-B, 25 mg. intramuscularly, and by the fourth week the joint pain had become much less severe. The blood cell count was not abnormal before, during, or after this toxic episode.

Case 2: Female, aged 31. Diagnosis: Rheumatoid arthritis. After ten injections of Solganol-B, to a total dose of 0.305 gm., itching in the ears and some rash on the neck, right hand, left thigh, and under the breasts were noted. Tripelennamine (2 per cent) ointment was applied and the gold was discontinued. Fourteen days later the joints were almost asymptomatic and the rash about the same. One week later the rash was three to four times more extensive. The ointment reduced the itching temporarily, but BAL therapy was begun with 0.5 cc. and 1.0 cc. the first day and

2.0 cc. the second day. A week later the dermatitis was even more extensive with considerable exudate. BAL was again given (2.0 cc.) and the following day repeated. The patient vomited one hour after the second injection. A week later the dermatitis was again worse and 1.0 cc. of BAL was given. Anti-histamine agents by mouth did not materially reduce the itching. The following day 2.0 cc. BAL and 300,000 units of penicillin in oil were administered. The patient was given methionine 3.0 gm. daily by mouth for two weeks. BAL was then given daily in a 2.0 cc. dosage for three more days and the skin lesions began to clear and the itching was considerably decreased. One month after the last dose of BAL the skin lesions were dry, and discolored areas showed no crusts or exudates; the only itching was under the breasts. There was no recurrence of the arthritis. Two weeks prior to the onset of the dermatitis, examination of the patient's blood had shown 5,600 leukocytes per cu. cc. with 9 per cent eosinophils, whereas two months before there had been only 2 per cent eosinophils in 4,900 leukocytes.

Case 3: Male, aged 50. Diagnosis: Rheumatoid arthritis. One day after an initial injection of 10 mg. Solganol-B, pronounced exacerbation of epidermophytosis of the hands and feet developed, as well as severe headache and conjunctivitis. The epidermophytosis and epidermophytid reactions subsided slowly in a period of three weeks. No more gold was administered.

Case 4: Male, aged 44. Diagnosis: Rheumatoid arthritis. The patient, who was on a maintenance dose of 50 mg. of Solganol-B per month, began to have arthritic symptoms. The dosage was increased to 50 mg. per week for five doses, after which folliculitis of the left axilla developed. A week later another 50 mg. of Solganol-B was given and the folliculitis evolved to furunculosis. Gold was discontinued and after two daily injections of 300,000 units of penicillin in oil the furunculosis began to improve. A month later the joint pains returned. Solganol-B, 25 mg., was given and the skin lesions did not return and the joint pain subsided. A dosage of 25 mg. every three to four weeks was continued, with relief of joint pain and no recurrence of toxic symptoms.

Case 5: Male, aged 27. Diagnosis: Rheumatoid arthritis. After the first injection of 10 mg. of Solganol-B the patient reported exacerbation of all arthritic pains within a few hours of the injection. Generalized itching also developed, but no rash. The same type of reaction followed each of five injections of 10 mg. of Solganol-B. On several occasions the patient had a low-grade fever for 36 hours following the injections. Dosage was reduced to 5 mg. and the same reaction occurred. Two injections of 10 mg. of Myochrysine at weekly intervals were given and the same reaction followed. After four more 10 mg. injections of Solganol-B at weekly intervals, therapy was abandoned, since the reactions were too severe in the 24- to 36-hour periods thereafter. During this time there was no change in the blood picture.

Case 6: Female, aged 53. Diagnosis: Rheumatoid arthritis. The patient often complained of soreness of the mouth for 24 hours following weekly injections of Solganol-B, but there were no lesions of the buccal mucosa until the total dose was 0.45 gm. Penicillin troches used every two hours during the day caused prompt improvement in the lesions. A week following another 50 mg. dose of Solganol-B, a white lesion 2 mm. in diameter appeared on the inner surface of the upper lip. Two weeks later 25 mg. of Solganol-B was given and the mouth was healed; however, after that injection some itching of the right upper eyelid developed. During the next month the patient was given weekly injections of 25 mg. each and during the month herpes on the lower lip developed, but there were no visible skin lesions. Finally after another 25-mg. injection and then a 12-mg. injection, scaling dermatitis of the eyelids developed—this after a total dose of 0.662 gm. No more gold was given. Neo-antergan (pyranisamine maleate) 50 mg., taken orally at four-hour intervals, gave some relief of the itching. During a three-month follow-up period without gold the skin lesions cleared completely and the joint pains did not return. Neither BAL nor methionine was used to combat the manifestations of gold intoxication in this case.

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CASE REPORTS

- Death Due to Erosion of a Vessel by Impaction of a Chicken Bone in a Meckel's Diverticulum
- Tubal Pregnancy in Tuberculous Salpingitis
- Edema of the Uvula, a Manifestation of Scopolamine Sensitivity
- Extramedullary Plasmacytoma of the Bladder with Local Metastasis
- Facial Characteristics of an Infant Without Renal Function

Death Due to Erosion of a Vessel by Impaction of a Chicken Bone in a Meckel's Diverticulum

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To the recorded causes of massive or intermittent intestinal hemorrhage with no other demonstrable symptoms may be added the extremely rare condition of erosion of a vessel owing to impaction of a chicken bone in a Meckel's diverticulum.

While diverticula occur in about 3 per cent of the population, symptoms arise in a much smaller group. Diverticula per se are subject to many complications, including inflammation, perforation, hemorrhage or obstruction.[2, 3, 6, 8] Hemorrhage is most common in children,[5,6, 7] obstruction in adults, while acute inflammation and perforation may occur at any age. Perforation producing severe hemorrhage or peritonitis may be produced by the accumulation of fecal matter with a foreign body in the diverticulum and also by the presence of gastric mucosa in the diverticulum which secretes acid gastric juice and may produce a peptic ulcer.[1, 2, 4] The gastric mucosa may extend 1 to 2 cm. into the ileum beyond the base of the diverticulum. Retention and impaction of a foreign body with incomplete perforation to produce hemorrhage is so rare as to merit reporting.

CASE REPORT

A 68-year-old robust-appearing white female was observed at home December 24, 1948, when a daughter noted the patient appeared extremely pale and became alarmed after learning she had been passing black stools for one week. The patient stated that she was weak and short of breath at times. She had a known rheumatic heart condition for which she had been observed the past three to four years. Blood examination revealed 1,670,000 erythrocytes, hemoglobin 5.6 gm. per 100 cc., 17,000 leukocytes with 73 per cent polymorphonuclears and 27 per cent lymphocytes. The patient was admitted to hospital that evening.

Since 1944 there had been gaseous distress, belching, constipation and a gnawing feeling in the epigastrium relieved by eating.

At the time of an examination in October, 1945, the weight was 143 pounds, height 62 inches, blood pressure 140 mm. of mercury systolic and 70 mm. diastolic (this varied to 210/120 on repeated examinations), pulse rate 100 (to 74), temperature 98.6° F., and respirations 18 per minute. The heart was enlarged and a rough systolic murmur was present at the apex and aortic areas. The liver was enlarged, smooth and pulsatile. No abnormality was noted in a pelvic examination.

On January 14, 1948 (11 months before hospitalization) the patient noted black stools for a period of one week, and result of a test was positive for blood in the stool. Complete x-ray studies of the gastrointestinal tract were negative. Chest films revealed rounding of the left ventricular segment with calcified plaques in the thoracic and abdominal aorta and in the mitral ring. Results of urinalysis were normal, the serological test of the blood for syphilis was negative.

With the exception of arthritic remissions, the patient remained in fair health up to the present episode.

Course in the hospital: On admission, a transfusion of 500 cc. of citrated blood was given, vitamin K and calcium gluconate were administered, and the patient was placed in an oxygen tent. She then volunteered that the substernal compression and precordial pain, which she had previously denied on questioning, were alleviated. A second transfusion was given the next day and the erythrocyte count rose to 2,580,000 and the hemoglobin to 6.6 gm. per 100 cc., or a value of 40 per cent. However, dyspnea and intense substernal pain developed; this persisted for several hours and required repeated dosages of narcotic for relief. The following day erythrocytes numbered 2,200,000 cells and the hemoglobin value was 37 per cent. A third transfusion was given, but the patient's condition deteriorated progressively, and with intense dyspnea, substernal pain and sweats, she died December 30, 1948. Physical findings, with the exception of signs of anemia and dullness in the lung bases, were unchanged.

At postmortem examination the stomach and upper bowel were normal in color and relatively empty, whereas all the colon and the lower small bowel were distended with blackish contents, as though from hemorrhage. In the ileum, approximately 1 meter from the ileocecal valve, there was clear-cut division between the normal appearance and the abnormal. At that point there was a Meckel's diverticulum measuring 6 cm. in length, 1.2 cm. in diameter at the tip and 1.5 cm. at the base. The diverticulum was tense, red in color with a blackish discoloration visible in the depths through the wall, and the vessels were injected. A hard mass was felt inside. The diverticulum was opened and a black flat triangular foreign object shaped like a wing and terminating in a spear (Figure 1) and having the appearance and consistency of a chicken bone was extracted. This was 1 mm. thick and 25 mm. in length, 10 mm. in width at the base, tapering to a spear 1 mm. in diameter. The wide blade-like edge of the bone pointed distally in the diverticulum (away from the ileum), while the point was imbedded and impacted in the base (Figure 2) where there was an ulcer crater 7 mm. in diameter about a reddened pouting area 3 mm. in diameter (Figure 2). No other lesions were found. The diagnosis was as follows:

Death was due to massive intestinal hemorrhage produced by bleeding from a vessel in a traumatic ulcer at the base of a Meckel's diverticulum, caused by an impacted penetrating chicken bone.

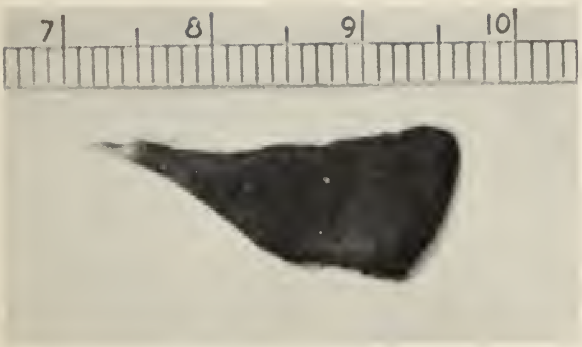

Figure 1.—Reproduction of chicken bone removed from Meckel's diverticulum which produced fatal hemorrhage by penetrating vessel.

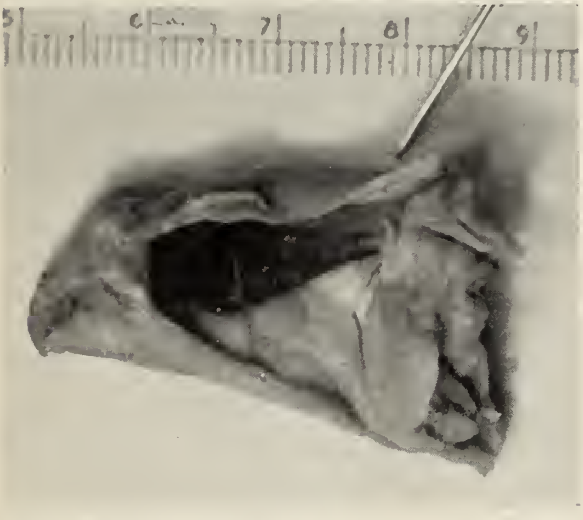

Figure 2.—Chicken bone in situ in diverticulum. Pin points to spear impacted in base.

DISCUSSION

The symptoms at the time of death were of a cardiac nature, yet the continued bleeding was directly responsible for death of the patient. The length of time the bone had been impacted in the diverticulum is conjectural. From the history of intestinal bleeding one year before death, it appears that the foreign body may have been present at least that length of time. The black appearance of the bone indicates it had been present for a considerable period.

SUMMARY

Death was caused by hemorrhage due to an erosion of a vessel by an impacted chicken bone in a Meckel's diverticulum.

Analysis of the history indicates that the bone may have been present in the diverticulum for at least a year.

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Tubal Pregnancy in Tuberculous Salpingitis

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THERE is considerable variation in the reported figures for the incidence of tuberculous salpingitis. The condition is not uncommon—it accounts for approximately 5 per cent of all cases of chronic salpingitis. The decreased incidence in the frequency of gonorrheal and pyogenic salpingitis as a result of adequate therapy in the acute stages with sulfonamides and the antibiotics may cause a relative increase in the frequency of tuberculous salpingitis. The combination of tubal pregnancy and tuberculous salpingitis is so rare as to warrant the reporting of all such cases.

CASE REPORT

A 39-year-old white married woman was admitted to Temple Hospital, Los Angeles, on May 18, 1948, with a complaint of lower abdominal pain of three hours' duration.

Present Illness: About 8 o'clock the evening of admission the patient had severe pain of sudden onset in the right lower quadrant of the abdomen, and the pain soon extended across the lower abdomen. These pains were continuous and aggravated by movement. There were no associated gastrointestinal or genito-urinary symptoms. Menstrual periods were always normal and regular. The last normal menstrual period was March 20, 1948. The patient began "spotting" on April 30, bled for five days, then passed clots and five pads daily had been used until admission. A physician who had been consulted by the patient two days prior to admission had suggested the possibility of threatened abortion.

Past History: In June 1944 the patient had had a somewhat similar episode of abdominal pain and bleeding. Operation at another hospital on this occasion disclosed an ectopic pregnancy, and a left tubo-oophorectomy was performed (the pathological report could not be obtained). There had been no other pregnancies, although no contraceptive measures had been taken. The patient gave no history of pulmonary or extrapulmonary tuberculosis, and as far as was known no member of her family or close contact had had tuberculosis. An x-ray film of the chest in December 1947 was negative for tuberculosis.

Physical Examination: The patient was acutely ill, apprehensive, well-nourished, and appeared to be about the stated age. The temperature was 98.6° F., pulse rate 90, respirations 22 and blood pressure 90 mm. of mercury systolic and 70 mm. diastolic. Positive findings were limited to abdominal and pelvic examinations. The abdomen was moderately and uniformly distended with a slight decrease in movements over the lower part. There was moderate tenderness and resistance over the whole lower abdomen on even slight pressure. Rebound tenderness was referred to the pressure point. There was no blood in fluid aspirated from the abdomen.

Laboratory Findings: Leukocytes numbered 15,700, with 94 per cent polymorphonuclear cells (56 per cent non-segmented), 1 per cent basophils, with moderate anisocytosis, poikilocytosis, hypochromia and microcytosis. The blood was type O, Rh positive, with cross-match satisfactory. Results of urinalysis were normal.

Course: There was no change in the patient's condition within the next hour and another pelvic examination was performed under aseptic precautions with two consultants present. The cervix was in mid-line, soft, smooth and nonpatulous, and pain was caused by attempts to move it. There was a tender mass in the right fornix. The body of the uterus could not be outlined because of abdominal resistance. A blood transfusion was started and the patient prepared for operation.

Operation: A spinal anesthetic with pontocaine was administered. About a pint of clotted blood in the peritoneal cavity was aspirated and swabbed out. The right tube was thickened, surrounded by clots, and partially ruptured, exposing an intact amniotic sac in the distal third. The tube was amputated and the stump inverted. The right ovary had some minute cysts on the surface and a small corpus luteum. The uterus was in normal position, firm and enlarged to about the size normal in the sixth week of pregnancy. The left tube and ovary had been removed at a previous operation. The abdomen was closed in layers without drainage.

Pathologist's Report: The specimen consisted of a fallopian tube 7 cm. in length and ranging in diameter from 1 to 2.5 cm. At the broad end of the tube there was an area of rupture, much of which was covered by blood clot and from which protruded a small sac containing an embryo, the total sac measuring 1.5 cm. in diameter. It was partially covered by spongy, yellowish tissue. On repeated section the lumen was found to be dilated and filled with blood.

Microscopic Pathology: Two sections of the fallopian tube showed moderate distention of the lumen with blood clot and placental tissue. The chorionic villi were immature and could be seen invading through the entire thickness of the wall of the tube. The plicae were compressed and showed considerable leukocytic infiltration, chiefly by polymorphs and numerous granulomatous lesions characterized by multinucleated giant cells of the Langhan's type and considerable epithelioid cell proliferation.

Diagnosis: Active tuberculosis of the uterine tube; pregnancy in the uterine tube with termination by perforation and hemorrhage.

DISCUSSION

Normal pregnancy is unusual in tuberculous salpingitis because of one or more factors. There may be impaired ovulation, interference with descent of the ovum into the tube, interference with ascent of the sperm into the tube, obstruction to progress of the fertilized ovum, unsuccessful nidation of the fertilized ovum in the uterus because of associated tuberculosis in that organ. Very rarely the fertilized ovum may nidate and mature for some time in an uninvolved or only slightly involved area in the fallopian tube or in the tuberculous uterus. Obviously, tubal pregnancy can occur only when the lumen is patent enough to permit ingress of the sperm through the uterine end and of the ovum through the fimbrial end so that union can take place. The fertilized ovum may then be obstructed by the tuberculous process, usually in the cornual portion, or it may be trapped in pseudo-glands formed by the adherence of mucosal folds. There is also the possibility of migration of the ovum to the opposite tube. If there is adequate healthy mucosa the ovum may be implanted and survive even for months. The trophoblasts rapidly extend through the tubal wall which has lost its elasticity because of the tuberculous process and scarring. Rupture or abortion of the tuberculous tubal pregnancy usually occurs much earlier than it does when the infection is gonococcal or non-specific.

The case here reported is of additional interest because of the previous tubal pregnancy and the excessive vaginal bleeding. It is possible that aspiration of the posterior cul-de-sac would have been positive for blood in spite of the negative abdominal tap. Recurrence of pelvic pain or vaginal bleeding would call for streptomycin (with chaulmoogra), dilatation and curettement, and possibly radical pelvic operation.

523 West Sixth Street.

Edema of the Uvula, a Manifestation of Scopolamine Sensitivity

Edward C. Mayer, Jr., M.D., *San Francisco*

SCOPOLAMINE is a drug which is commonly used preoperatively to produce psychic sedation and drying of the oral and bronchial secretions. Its safety is attested by the wide routine use of it. However, some persons are hypersensitive to it, and this is manifested by certain adverse reactions. In one case observed by the author, edema of the uvula and posterior pharynx developed in a healthy young man following the injection of a single therapeutic dose of scopolamine. As this was a rather rare and striking manifestation of such an altered reaction, the case is reported.

CASE REPORT

An essentially healthy young male was to have an operation for plastic revision of facial scars under local anesthesia with 1 per cent procaine. The premedication was morphine 0.015 gm. (gr. ¼), scopolamine 0.0006 gm. (1/100 gr.), and nembutal 0.1 gm. (1½ gr.) about 1½ hours preoperatively. Because of restlessness, 0.01 gm. (1/6 gr.) of morphine was given intravenously during the procedure.

The operation went well, but about two hours after returning to the ward the patient began to complain that he felt as if "his throat were swollen inside." He continued to complain and stated that it was becoming difficult for him to swallow and breathe.

Examination at this time showed a greatly swollen edematous uvula and pronounced edema of the soft tissues of the posterior pharynx. An injection of 0.3 cc. of 1:1,000 epinephrine was given intramuscularly, and 0.2 cc. of 1:1,000 epinephrine into the uvula. Very shortly the edema began to recede, and within eight hours recovery was complete.

The patient had been operated on 18 times previously without any evidence of drug sensitivity. Previously, atropine had been used, and not scopolamine. Because of the severe reaction following this operation, skin tests were made with atropine and scopolamine. Test solutions were prepared by dissolving 0.0006 gm. of atropine and 0.0006 gm. of scopolamine in 2 cc. of normal saline each, and 1/10 cc. of each of the test solutions was injected intradermally into his forearm. A saline control was set up in the same manner. Thirty minutes after injection, there was no reaction to the saline control. At the site of atropine injection there was a ½-inch circular flare with no induration; a 2½- by 3-inch fiery red flare with large indurated central wheal developed around the point of scopolamine injection.

DISCUSSION

This extreme reaction to intradermal scopolamine was felt definitely to indicate a sensitivity to the drug. To be sure, red angry papules are sometimes seen at the site of

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From the Department of Surgery (Anesthesia), Stanford University School of Medicine, San Francisco.

morphine and scopolamine injections in patients who exhibit no other signs of sensitivity, but these local reactions are extremely mild when compared to the reaction seen in this patient following the intracutaneous injection of 0.00003 gm. of scopolamine.

A search of the literature disclosed only two instances in which similar reactions were reported, and these reactions occurred after multiple doses of scopolamine or scopolamine and Demerol combined were administered for obstetrical analgesia. Kirschbaum[1] wrote, "The uvula may swell to five or six times its normal size and may appear markedly reddened." Steinberg[2] reported three cases of edema of the uvula, one in which there was edema of the glottis also, in a series of 400 cases in which Demerol and scopolamine were used for analgesia during labor.

Throat irrigations, scarification of the uvula and/or argyrol applications were the therapy recommended in the previous reports.[1, 2] Epinephrine injections were chosen as the therapy for this patient because an allergic reaction was suspected, and epinephrine is a time-tested agent for the relief of allergic edema.

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Extramedullary Plasmacytoma of the Bladder with Local Metastasis

A. D. Gorfain, M.D., *Los Angeles*

SINCE Schridde[4] in 1905 reported the first case of extramedullary plasmacytoma, there have been 129 cases reported. Hellwig[1] in a succinct report brought the literature up to date as of 1943 and reported his own observation of a case of extramedullary plasmacytoma of the oral cavity. In 63 cases the tumor originated in the upper respiratory tract; in 47, in the conjunctiva; in four, in lymph nodes; and in 13 in other organs (pleura, mediastinum, spermatic cord, thyroid gland, ovary, intestines, kidney, and skin). In only two of the 129 cases was the tumor located in the genito-urinary organs—one in a kidney and the other in the spermatic cord. Hellwig's review did not include a third case, reported by Marion and Leroux[2] in 1924, in which a 44-year-old male patient with signs and symptoms of vesical tumor apparently was treated successfully with suprapubic radium implantation. No case like the following could be found in the American literature.

CASE REPORT

The patient, a man 39 years of age, complained of microscopic hematuria influencing insurance applications for the previous five years. At the time he came under the author's observation a complete urinary tract study had been done elsewhere, and the condition was ascribed to "pus pockets" in the bladder. For one month the patient had malaise. No other pertinent signs or symptoms in the present or past history could be elicited. The family history was essentially normal, except for tuberculosis in the mother and one sister. The review of systems was essentially irrelative. There had been no loss of weight.

The patient was a well developed, well nourished, white male. The general physical examination was not remarkable. Blood pressure was 118 mm. of mercury systolic and 74 mm. diastolic. Specific attention to the genito-urinary organs revealed no masses or tenderness. The prostate was normal in size, configuration and consistency. Results of routine blood examinations were normal. The urine, amber and clear, showed no albumin or sugar; the pH was 6.0. Microscopic examination showed it to contain 10 to 20 erythrocytes and 4 to 6 leukocytes per high dry field. No organisms were found in Gram-stained specimens and none grew on cultures.

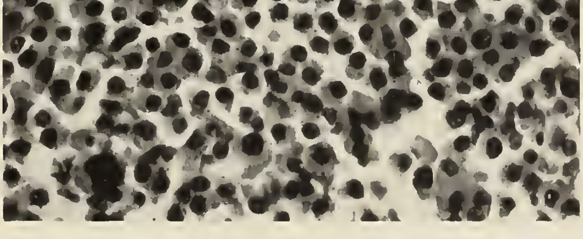
Cystoscopy revealed nothing of note except that the mucosa over the base and the trigone was covered with small vesicles as in cystitis cystica. Indigo carmine was emitted from each ureteral orifice in 4 plus concentration within five minutes. Catheters were readily passed to both renal pelves and clear urine which on microscopy showed no abnormal elements, was obtained. A kidney-ureter-bladder x-ray film showed soft tissue and skeletal structures to be normal. Ureteropyelograms delineated normal upper tracts. A diagnosis of cystitis cystica was made and sulfadiazine prescribed.

The patient was not seen again until six months later, with gross hematuria of three days' duration. Cystoscopy at this time revealed a smooth red tumor, 3 cm. in diameter, nonpedunculated, on the left anterior vault. He was hospitalized, and a segmental resection of the bladder was done. The tumor and a 1 cm. cuff of normal bladder were removed with high frequency cutting current. Healing and convalescence were uneventful, and the patient was discharged on the fifth day.

The pathologist's report was: "A hemorrhagic appearing, grayish mass measuring 3x4x2 cm. Sectioning revealed a somewhat lobulated structure with the tissue being quite homogeneous, gray-white, and soft in consistency. Microscopic examination of the section revealed large sheets of cells with comparatively small amounts of stroma. The cells were rounded to polygonal with fairly prominent cytoplasma. Many of these cells tended to present eccentric cartwheel nuclei suggesting plasma cells."

The exact diagnosis was not established and a specimen was sent to the Army Institute of Pathology, which reported: "The extraordinary lesion appears to be a plasma cell tumor (extramedullary myeloma, plasmacytoma). The location is most unusual, and the patient should have a skeletal survey, urinary studies for Bence-Jones protein, fractionated serum proteins, bone marrow aspiration, and search for other sites in general. The tumor will be entered in the Registry, in which collection it is most certainly unique."

All the studies suggested were done and in no instance were deviations from the normal observed. The patient was seen at monthly intervals in the office, and urinalyses showed no more erythrocytes or leukocytes. Five months after the



Photomicrograph (high power) of the vesical plasmacytoma showing the uniform cell structure, eccentric nuclei and cart-wheel nuclei. (A.I.P. Neg. No. 101162).

operation, an indurated area appeared at the lower angle of the scar, not definitely fixed to the symphysis. An x-ray film showed the pelvic bones to be normal. Cystoscopy showed a well healed scar, at the anterior end of which was a smooth tumor 2 mm. in diameter, covered with normal mucous membrane. The patient left on vacation for one month, and on his return a 6 cm. mass was present immediately under the skin in the suprapubic area surrounded by extensive induration, which extended to the base of the penis without discoloration.

The patient was rehospitalized and a midline suprapubic incision was made over the symphysis for a distance of 6 cm. Part of the old scar was removed. Immediately vascular tumor tissue was encountered adherent to the subcutaneous tissue. This was pale in color, not unlike normal subcutaneous fat, but much harder. A portion of this and several nodules at the base of the penis were removed for biopsy. The wound was closed and the patient was discharged on the third day, to return for x-ray therapy.

Section examination revealed essentially the same type of cell as was seen in the previous bladder tumor. There appeared to be more of a tendency to infiltrative type of growth, there being a considerable amount of connective tissue with the cells, which were found in varying sized groups.

A week after the operation a course of deep x-ray therapy was started and daily treatments were given for the next 20 days, during which time the patient received 5,200 r through two anterior portals to the urinary bladder, using the following factors: 200 K.V., 15 M, 50 cm. distance, Thoreus filter, half value layer, 2.10 mm. copper. The growth disappeared rapidly except for several nodules at the base of the penis. Because of considerable localized skin reaction, therapy was stopped for ten days. Then in the next seven days the patient received 1,700 r to the left side of the base of the penis, using the following factors: 200 K.V., 15 Ma, 50 cm. distance, ½ mm. copper plus ½ mm. aluminum, half value layer 1.12 mm. copper. The remaining evidence of tumor gradually disappeared over the next two months until none was present. Cystoscopy at this time showed no abnormality except for the previously noted cystitis cystica without symptoms. Repeated examinations in the succeeding ten months showed no evidence of recurrence. The patient gained back all the weight lost during the hospitalization and x-ray therapy. How long this desirable state of arrest, or possible cure, will last is questionable.

DISCUSSION

Though the upper respiratory tract is the site of predilection for the extramedullary plasma cell tumor, its occurrence in any organ is possible. The plasma cell is accepted generally as a normal constituent of connective tissue originating in tissue lymphocytes, and the presence everywhere in the body of this type of cell makes for the same distribution of its neoplastic prototype. Clinically, however, such tumors appear as localized lesions on mucous membranes and probably have a long noncancerous phase before characteristic malignant spread occurs. Hellwig's studies indicate that histologically there are no differential characteristics in either phase. In the case here reported, the histology of the tissue from the bladder lesion and the later malignant spread were identical. McNamara and Rogers[3] reported a case of a patient with tonsillar tumor in which the histology was identical with that of a cervical mass removed six years later. Characteristically these extramedullary tumors, whether single or multiple, do not show the urinary Bence-Jones protein and other findings typical of the medullary variety.

In the case reported here the author feels sure the lesion was present at the time of the first cystoscopy, but probably it was very small. It could not have been missed if it had been even a quarter of the size seen later. Its very rapid growth postoperatively supports the contention that between the two cystoscopies the lesion went from a non-malignant to a malignant phase. The possibility of cure in extramedullary plasma cell tumors remains as long as the growth does not extend to bony structures or lymph nodes and if local recurrence remains sensitive to radiation.

The lesson in this singular case is that radiation, to which this neoplasm is extremely sensitive, should be used immediately after the diagnosis of plasma cell tumor is made. Biopsy before operation will permit preoperative or postoperative radiation and probably prevent local recurrence. In this, plasma cell tumors are unlike the common carcinomatous bladder tumors which are relatively insensitive to x-ray.

Addendum: It is now 18 months since the original operation and the patient is apparently cured.

SUMMARY

A case of extramedullary plasmacytoma of the bladder with local metastasis is reported. The literature is briefly touched upon and discussed.

1033 Gayley.

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Facial Characteristics of an Infant Without Renal Function

J. D. Kirshbaum, M.D., *San Bernardino*

IN 1946 Potter[1] called attention to the facial characteristics of infants with bilateral renal agenesis. This facial expression had not been observed in association with death from any other cause. Potter stated that "Infants with extreme renal hypoplasia or polycystic changes in the kidneys, and who die because of renal insufficiency, may have similar facies and may have some resemblance to infants with complete renal agenesis, but the appearance is never as typical, and the presence of a kidney anomaly cannot be foretold with certainty."

The typical facies as described by Potter have shown the following features: a receding of the chin, large, low-set ears (with little cartilage), an increase of the width between the eyes and an unusually prominent fold arising at the inner canthus of each eye. The fold sweeps downward and laterally to form a wide semicircle under the inferior medial aspect of each orbital space. There is a flattening and slight broadening of the nose. These features give the face of the infant a resemblance to that of a person of very advanced age.

In the case reported in following paragraphs there was agenesis of the right kidney and complete atrophy of the left kidney, with cyst formation. The facial features were so typical of the cases reported by Potter that a diagnosis of agenesis of the kidneys was made by the author before the autopsy was performed.

From the Department of Pathology, Kern General Hospital, Bakersfield.

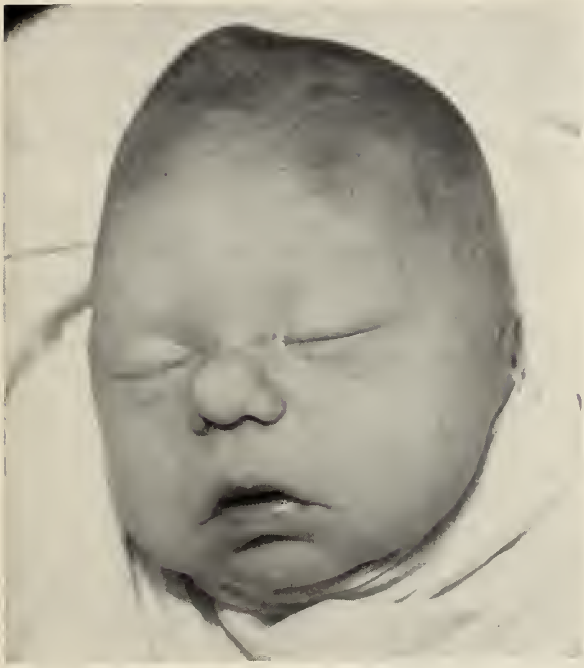

Figure 1.—Photograph shows typical facies of infant, age one hour, in whom there was complete absence of the right kidney and hypoplasia of the left kidney.

CASE REPORT

History: The mother was a 28-year-old white female, gravida II para I. The previous pregnancy, six years before, had been normal and the child was living and well. A Kahn test of the mother's blood was negative. The mother had gained 15 pounds during pregnancy. After eight hours of labor she delivered spontaneously a male infant that expired after one hour.

Autopsy: The body weighed 2,100 gm. and was 42 cm. in length. There was pronounced edema of the scrotum, and the penis appeared hypoplastic. The facies presented an unusual mask-like appearance. The chin appeared receded and the distance between the eyes was greater than normal. There was a prominent fold arising at the inner canthus of each eye which appeared to sweep downward and outward, extending beneath each orbital space. This gave the child an older appearance. The bridge of the nose appeared flattened and wide.

The left hand was inverted (manus vara). The left foot showed a talipes calcaneus valgus, while the right foot showed a talipes equinovarus. The right thumb was missing and the left thumb was attached to the hand by a fibrous short pedicle. The anus was absent and the scrotum contained one testicle.

The left side of the diaphragm presented a defect through which had herniated the small intestines, the left lobe of the liver, the spleen, the pancreas, splenic flexure of the colon and the stomach into the pleural cavity.

The left lung was firm, smaller than normal and atelectatic. There was pronounced stenosis of the left main bronchus, which probably influenced the growth of the left lung.

Kidneys: There was a complete absence of the right kidney and right ureter. The left kidney was replaced by a dense fibrotic tissue studded with cysts up to 5 mm. in diameter. No normal parenchyma could be made out. There was a double ureter on the left side and it was transformed into a cord-like structure.

The urinary bladder was thickened and contracted. The left ureteral orifice in the bladder was obliterated and the right was missing.

The distal end of the rectum ended blindly.

There was a communication between the lower end of the rectum and the prostatic urethra. The urethra of the penis was patent.

The case reported is illustrative of the numerous malformations which may coexist and not cause death of the fetus in utero. Even with complete absence of the kidneys or total impairment of their function, the fetus may develop completely, although the lesion is incompatible with life following birth. In all of Potter's[2] cases of agenesis of the kidneys the facial characteristics were so typical that the autopsy findings often could be predicted. Although one kidney was found with complete absence of glomeruli, the case reported resembled those reported by Potter, who encountered absence of both kidneys.

San Bernardino County Hospital.

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EDITORIALS

Local Health Officers

Much good appears possible in the maintenance of high public health standards through the activities of the California Association of Local Health Officers. This is a new organization, established by the act of the State Legislature in 1947, as an instrument for counsel with the State Department of Public Health. The association of local health officers is intended to advise the state health department officials on programs and projects, in the interest of building up and maintaining proper and adequate standards of public health administration.

At first blush it might seem presumptuous for the Legislature to set up an advisory body to a sovereign department of the state administration. On second look, however, such a move appears not only reasonable but highly advantageous. Consider, for instance, the difference in outlook between a state health department official and a local health officer on, say, tuberculosis. The state official sees a case of active tuberculosis as a fragment of the statistics crossing his desk every day; the local health officer sees the same case as the disease of a resident and neighbor in the community. The state officials might well regard such a case as only one element of fuel for a machine for added control measures; the local health officer would look upon the individual who needs help for himself and as a community safeguard.

It is easy to visualize the gap between the state bureau officers with a vision of perfect health always beckoning and local health officers faced with the problem of insuring clinical care for needy individuals. The state officer may well use an individual case as a means toward the end of establishing a new—and costly to the taxpayer—program, whereas the local officer wants only to see a cure effected, not a program.

It puts no strain upon imagination to conjure a picture of bureau employees on the one hand and working doctors on the other. The bureau employee has the advantage of being legally and legislatively classified as in a particular category of interest and study. The local health officer is faced every day and intimately with his multifarious duties—with problems of water supply, sanitation, pest control, infectious disease, laboratory services, health education, vital statistics. Little wonder that there may arise a difference of opinion between the two. The one may concentrate on a pet project and devote his entire energy to analyzing it and developing means of selling it to others; the other has daily work to do and little time left over for grinding axes.

We suspect that most local health officers are more interested in doing a good job of their assigned activities than in embracing new and bureaucratic plans for expanding their departments through the subsidy of higher governmental echelons. We suspect that most local health officers are more concerned with clearing up the tuberculosis and venereal disease problems in their own communities than in entering into new bureaucratic programs for increasing the number of eligible participants in federal-state munificences which operate on public funds and help create a snowballing centralization of control.

In our opinion, the local health officers, the men on the delivery line, should be given every encouragement and every assistance in their legal duty of advising with state health department officials. After all, they are the men who see the human results of failures in the public health programs developed over the past half-century. Let's give them a hand in cleaning up their old problems before they are asked to take on new ones.

Whose Hospital Records?

From time to time a ruling is issued by a responsible state official which causes raised eyebrows and a reiteration of the old question: Whose country is this, anyway?

Latest example is the recent ruling by the office of the Attorney General of the State of California to the effect that authorized representatives of the State Department of Public Health may examine the records of individual patients in hospitals. The ruling is based upon an interpretation of existing sections of state laws which give the Director of Public Health and his representatives the right to enforce sections of law which require hospitals to maintain records sufficient to make out death certificates.

In another of the many statutes, the details of a proper death certificate are listed, including such routine items as age, race, name, color, date and place of death, occupation and the like. Nowhere is there any requirement that the death certificate contain any information on nursing notes, orders for medication, diagnosis, prognosis or the other incidentals to proper medical treatment of the patient.

On page 155 of this issue will be found the legal opinion of the California Medical Association's general counsel on this subject. All members, and particularly those whose activities may include the operation of hospitals or vigilance over patients in hospitals, are urged to study this opinion.

The law is inflexible, or so we have been led to believe. However, interpretation of the law is certainly not confined to any one school of thought, whether such interpretation come to us through the courts or through departmental regulation with or without the backing of a state attorney general's opinion. Counsel for the Association believes the Attorney General's opinion to be in error.

The California Medical Association relies on advice received from its duly appointed legal counsel, and over more than three decades such advice has proven reliable. In the present instance, we see no reason for deviating from this policy. Certainly there is no desire on the part of either physician or patient that state officials be permitted to enter into fishing expeditions into private records. Certainly the sanctity of private records, which contain all information required by law and go beyond that to other matters of personal and professional—but not public—interest, is something to be maintained at all costs.

We believe the Attorney General should review this opinion in the light of private interests as well as public policy. The latter is acknowledged but the former is the more cherished by all concerned, law enforcement officers included.

* * *

Letters to the Editor . . .

San Francisco

Editor, California Medicine

Dear Sir:

On the jacket of Dr. Rudolf von Urban's book, "Sex Perfection and Marital Happiness," The Dial Press, Inc., New York, 1949, I found myself quoted as saying: "Based on an entirely new point of view, his experiences and theories will without doubt become the basis of a scientific research work."

This quotation may give the impression that I have reviewed the book of Dr. von Urban and that I have used the sentence in such a book review.

Therefore, I wish to state that the quotation obviously results from an error on the part of Dr. von Urban or his publisher.

Whatever the merits of Dr. von Urban's views are, I do not believe that his theories will become the basis of scientific research work in the future.

Very sincerely yours,

Siegfried Fischer, M.D.

Cytoplasmic Hereditary Determiner

Revision of the generally accepted mendelian theory of genetics is suggested by Sonneborn* of the department of zoology, Indiana University, based on rapidly accumulating evidence of the importance of extrachromosomal hereditary determiners, not taken into account in the present theory.

Much of this new evidence is drawn from a study of the hereditary characters of paramecia. For example, among the progeny of a common ancestor there may arise six antigenically different strains having identical nuclear genes. Each strain repeatedly injected into rabbits gives rise to a strain-specific antiserum. This serum is capable of paralyzing homologous-strain paramecia, but is nontoxic for other strains. Reciprocal crosses between paramecia of different strains show that the antigenicity is not determined by nuclear genes, since normal nuclear interchange does not alter the antigenicity of either conjugant. Under certain control conditions, however, atypical conjugation may take place. In such cases a cytoplasmic bridge is formed between the two conjugants and cytoplasm flows from one mate to the other. On separating, the two conjugants are now of identical antigenicity.

A second character studied by the reciprocal cross technique is the production of an ectotoxin ("paramecin") by certain "killer" strains. This toxin is lethal for certain "sensitive" paramecia but is nontoxic for homologous-type paramecia. Ordinary conjugation between killer and sensitive individuals, with normal nuclear interchange, does not alter the hereditary toxin production or sensitivity of either conjugant. With the cytoplasmic transfer of atypical conjugation, however, a sensitive conjugant which gets cytoplasm from a killer parent will multiply to produce a killer culture. A conjugant which receives cytoplasm from a sensitive parent produces a sensitive culture.

Extension of this cytoplasmic transfer to multicellular organisms has been deduced from studies of the hereditary CO_2-sensitivity or CO_2-resistance of fruit flies (Drosophila). If CO_2-sensitive and CO_2-resistant strains are mated reciprocally, the offspring are usually like the mother, CO_2-sensitive when she is sensitive and CO_2-resistant when she is resistant. This is interpreted as evidence of an hereditary transmission of CO_2-sensitivity or CO_2-resistance by means of ovarian cytoplasm, the sperm carrying practically no cytoplasmic material.

This interpretation has been confirmed microscopically. Killer paramecia usually contain from 200 to 1,000 cytoplasmic granules, or "kappa" particles, not demonstrable in sensitive paramecia. The rate at which kappa multiplies in a killer cell is independent of the rate of multiplication of the cell as a whole, and is determined or modified by such factors as temperature and food supply. When a killer paramecium divides, the kappa particles are usually distributed unequally between the two daughter cells. There may thus occur a marked increase in the number of kappa particles in one of the daughters, with a corresponding decrease in the sister cell. With an increase in kappa count there is a parallel increase in toxin production. With a moderately reduced kappa count there is a partial or complete loss of toxin production, but with retention of full toxin resistance or immunity. With a further loss of kappa particles, this immunity in turn is lost, the paramecium becoming sensitive or allergic to paramecin.

Since all cells of a multicellular animal are believed to contain the same set of nuclear genes, similar quantitative changes in cytoplasmic determiners are believed to be the key to the mechanism of cellular differentiation. Sonneborn believes such changes are also a key to the etiology of numerous organic diseases, including cancer.

On disintegrating, killer paramecia set free kappa particles into the environment. Non-killer paramecia exposed to this environment may ingest, and thus acquire, killer genes, and give rise to a new killer strain. The kappa particles thus have properties similar to those of a non-pathogenic or even beneficial virus.

Future studies of kappa particles and other cytoplasmic hereditary determiners may therefore be of basic clinical interest.

W. H. Manwaring
Stanford University, Calif.

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*Sonneborn, T. M.: Amer. Scientist, 37:33 (Jan.), 1949.

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NOTICES AND REPORTS

Changes in C.P.S. Procedures

Significant changes in California Physicians' Service have just been effected — incorporating recommendations of C.P.S. Administrative Members during the recent convention in Los Angeles of the California Medical Association.

The revisions are designed to strengthen the operating and financial base of the C.P.S. prepayment plan, to simplify its procedures, and to achieve a position such that the objective of full payments of the C.P.S. fee schedules may be realized.

Nursing and clerical personnel will benefit from a thorough understanding of the changes, and C.P.S. suggests that physicians ask their secretaries and nurses to read this article.

The changes are:

New Billing Form No. 9: A new and simplified Billing Form No. 9 is being put into effect, having been devised and approved by the C.P.S. board of trustees after many months of careful study. Form No. 9 enables the physician member to ask the beneficiary to fill in pertinent membership information, and includes a section in which the member indicates his income status.

C.P.S. officers point out that the bills frequently do not give a complete picture of any special or unusual medical or surgical procedure. In such cases C.P.S. payments are necessarily based on an incomplete report. C.P.S. urges that physicians instruct their office personnel to give complete data in all instances, and suggests that the physician or nurse carefully check the beneficiary's membership number on the C.P.S. card. This, it was pointed out, is of utmost importance because C.P.S. cases are filed numerically and any error may delay payment and cause unnecessary correspondence and telephone calls.

New Income Ceiling: After more than a year of careful study and guided by the expression of the Administrative Members of C.P.S., industrial surveys, and several medical polls, the board of trustees changed the C.P.S. income ceiling to an annual $3,600 gross income to be effective on services performed after August 1, 1949. This change will simplify record-keeping for physician members. As previously mentioned, the new Billing Form No. 9 will require the beneficiary to indicate his income. Experience has proved that many misunderstandings can be avoided if physicians, at the time of the first visit, discuss charges for service with the beneficiary whose income exceeds the $3,600 gross annual income figure. It is of great importance to discuss the probable amount in advance of any service rendered. This, it was pointed out, is vital to the public relations of the physician as well as to the public acceptance of the voluntary health plan movement.

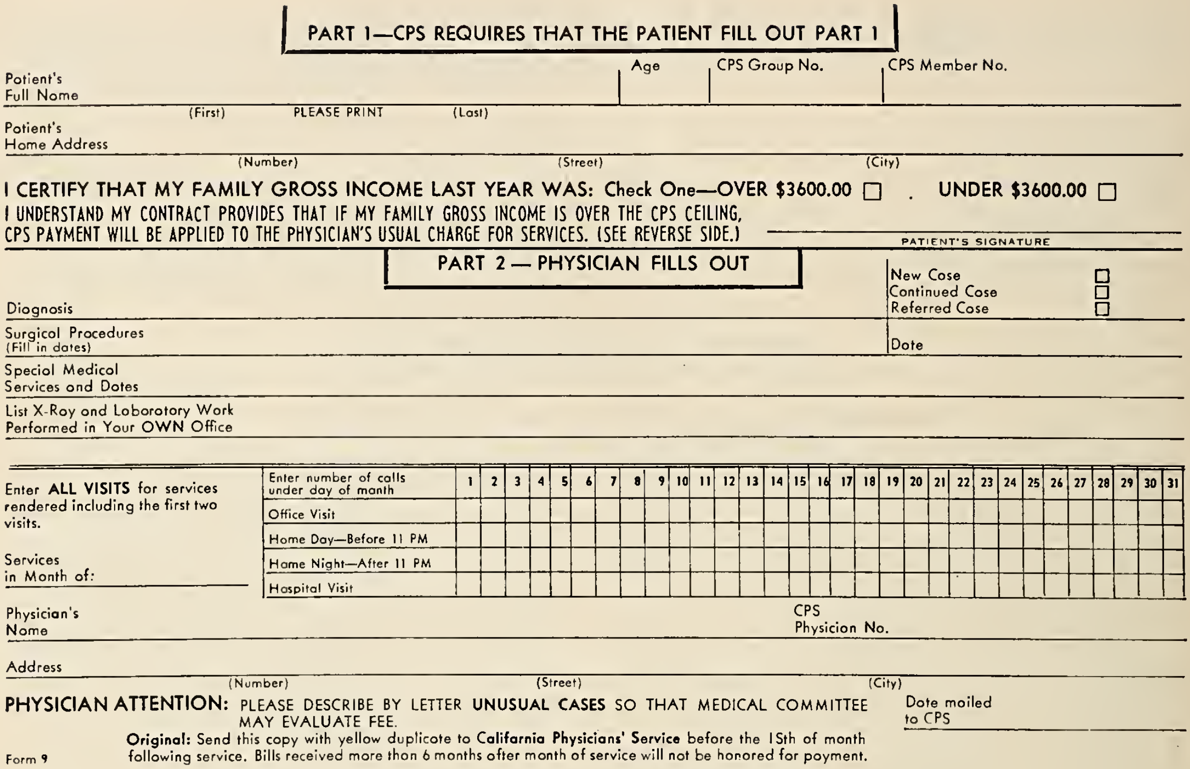
New Physicians' Payment System: Beginning on August 1, 1949, *Northern California* physician members' accounts with C.P.S. will be credited daily with the amount of each claim submitted. At the end of the month one check covering all claims credited during the month, together with the Billing Form No. 9 and an itemized descriptive statement with all items included in the remittance, will be sent to the physician member.

The new system has been made necessary by the huge volume of claims now being paid. An application of mechanical bookkeeping equipment makes this possible, and a representative savings in postage and operational expense will result.

Individual Membership Plan: The C.P.S. individual plan, covering surgical and hospital bills, is being offered throughout *Northern California* (north of and including Fresno County) effective August 1.

In September 1948, this surgical-hospital plan for individuals and their families who were unable to join C.P.S. through group enrollment was offered in Humboldt-Del Norte counties. Wide public acceptance of the new plan, coupled with proof of its financial feasibility, led to extension of this coverage to 17 northeastern counties last May.

The individual membership plan will be extended to Southern California as soon as possible through cooperation with the hospital service of Southern California Blue Cross Hospitalization Plan. When this is done, individuals will have the benefit of C.P.S. protection on a state-wide basis. All requests for information regarding this new coverage are being referred to C.P.S. San Francisco offices, 440 Mission Street.



PART 1—CPS REQUIRES THAT THE PATIENT FILL OUT PART 1

Patient's Full Name (First) PLEASE PRINT (Last) | Age | CPS Group No. | CPS Member No.

Patient's Home Address (Number) (Street) (City)

I CERTIFY THAT MY FAMILY GROSS INCOME LAST YEAR WAS: Check One—OVER $3600.00 ☐ . UNDER $3600.00 ☐

I UNDERSTAND MY CONTRACT PROVIDES THAT IF MY FAMILY GROSS INCOME IS OVER THE CPS CEILING, CPS PAYMENT WILL BE APPLIED TO THE PHYSICIAN'S USUAL CHARGE FOR SERVICES. (SEE REVERSE SIDE.)

PATIENT'S SIGNATURE

PART 2 — PHYSICIAN FILLS OUT

New Case ☐
Continued Case ☐
Referred Case ☐

Diagnosis

Surgical Procedures (Fill in dates) | Date

Special Medical Services and Dates

List X-Ray and Laboratory Work Performed in Your OWN Office

Enter **ALL VISITS** for services rendered including the first two visits.

Services in Month of:

Enter number of calls under day of month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Office Visit																															
Home Day—Before 11 PM																															
Home Night—After 11 PM																															
Hospital Visit																															

Physician's Name | CPS Physician No.

Address (Number) (Street) (City)

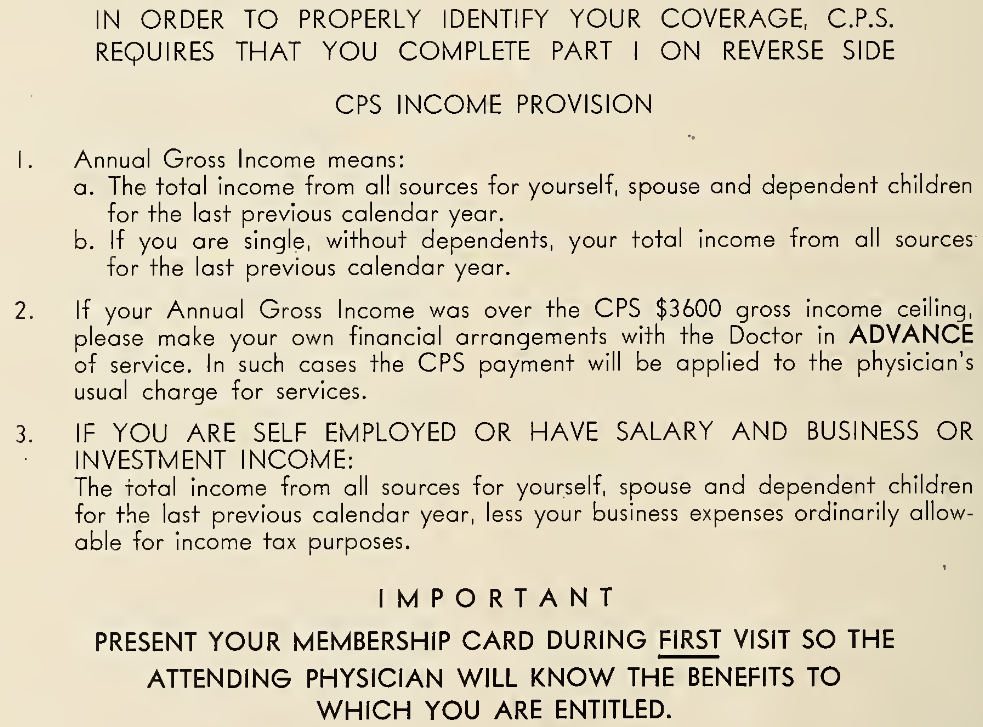
PHYSICIAN ATTENTION: PLEASE DESCRIBE BY LETTER **UNUSUAL CASES** SO THAT MEDICAL COMMITTEE MAY EVALUATE FEE.

Date mailed to CPS

Original: Send this copy with yellow duplicate to **California Physicians' Service** before the 15th of month following service. Bills received more than 6 months after month of service will not be honored for payment.

Form 9

(Above is replica of front of new Form 9; reverse side is duplicated below.)



IN ORDER TO PROPERLY IDENTIFY YOUR COVERAGE, C.P.S. REQUIRES THAT YOU COMPLETE PART I ON REVERSE SIDE

CPS INCOME PROVISION

1. Annual Gross Income means:
   a. The total income from all sources for yourself, spouse and dependent children for the last previous calendar year.
   b. If you are single, without dependents, your total income from all sources for the last previous calendar year.
2. If your Annual Gross Income was over the CPS $3600 gross income ceiling, please make your own financial arrangements with the Doctor in **ADVANCE** of service. In such cases the CPS payment will be applied to the physician's usual charge for services.
3. IF YOU ARE SELF EMPLOYED OR HAVE SALARY AND BUSINESS OR INVESTMENT INCOME:
   The total income from all sources for yourself, spouse and dependent children for the last previous calendar year, less your business expenses ordinarily allowable for income tax purposes.

IMPORTANT

PRESENT YOUR MEMBERSHIP CARD DURING FIRST VISIT SO THE ATTENDING PHYSICIAN WILL KNOW THE BENEFITS TO WHICH YOU ARE ENTITLED.

New Medical Rider: As a result of public demand for a medical care plan giving medical-services-in-the-hospital coverage to all family members alike, a new program, providing medical care while hospitalized, is being offered throughout the state for all new groups. Under this new plan, both the employee member and the family members will be entitled to medical services in the hospital, but the member will not be entitled to medical care outside the hospital. Existing contracts calling for medical care for the employee member outside the hospital remain in effect. C.P.S. stresses that it will now be more important than ever to examine membership cards to make certain of the type of medical benefits the member and/or family is entitled to. This will be clearly indicated on identification cards in the section which gives date of membership.

New Officers and C.P.S. Board Members: Three new members of the board of trustees of the California Physicians' Service were elected at the meeting of the C.P.S. Administrative Members in May. New board members are Dr. T. Eric Reynolds of Oakland, Dr. Frank A. MacDonald of Sacramento and Mr. Thomas Hadfield of San Francisco. At the board of trustees June meeting Dr. Lowell S. Goin was reelected president and Dr. H. Randall Madeley was elected first vice-president. Dr. J. Frank Doughty was elected vice-president replacing Dr. A. E. Moore, who had completed his term of service as board member. Dr. Henry L. Gardner was elected secretary, replacing Dr. Chester L. Cooley, who had similarly filled his prescribed term of office. Mr. Ransom Cook was elected treasurer and Dr. A. M. Meads was elected assistant secretary-treasurer. Other board members are Dr. Donald Cass, Dr. Kendrick Smith, Dr. Robertson Ward, Dr. John H. Rumsey, the Rt. Rev. Msgr. Thomas J. O'Dwyer and Mr. C. Ray Miller.

Opinion on Access to Hospitals' Records of Patients

On April 14, 1949, the California Attorney General rendered an opinion (No. 48/87) to the Director of Public Health of the State of California, in which he concluded that authorized representatives of the State Department of Public Health may examine the records of individual patients in hospitals. The opinion of the Attorney General on this matter is based on the theory that the Director of Public Health, or his authorized agents, has the right to inspect hospital records on any patients in order to enforce the regulations issued under Section 1411 of the Health and Safety Code or to see that hospitals are keeping records sufficient to make out a death certificate under Sections 10008 et seq. of the Health and Safety Code.

Referring first to the requirement concerning death certificates, Section 10008 of the Health and Safety Code requires hospitals and other similar institutions to keep records of personnel and inmates "sufficient and adequate for the completion of a birth or death certificate." Section 10375 of the Health and Safety Code lists the contents of a death certificate. This consists of the name, place of death, color, race, sex, marital status, names of survivors, names of parents, occupation of decedent, place of interment and medical certificates, etc. It is not required that the death certificate contain any of the matters that are normally in the average hospital record of the patients admitted therein. In other words, the death certificate does not need the diagnosis (other than the cause of death), nursing notes, medication orders or progress notes. Therefore, it is not necessary for the Director of Public Health to inspect the medical portion of a hospital record in order to see that Section 10375 of the Health and Safety Code is being complied with.

With reference to the requirement that hospitals must keep medical records as promulgated by the State Department of Public Health, these regulations have been promulgated under Section 1411 of the Health and Safety Code. This is the so-called licensing law of hospitals, and Section 1411 declares that the state department may promulgate, modify, remand, etc., "*reasonable rules* and *regulations* to carry out the purpose of this chapter, classifying hospitals and prescribing minimum standards of safety and sanitation in the physical plant, of diagnostic, therapeutic and laboratory facilities and equipment for each class of hospital." It is obvious, therefore, that the purposes of this Act are:

1. To license hospitals.
2. To classify hospitals.
3. To establish minimum standards of safety and sanitation in the physical plant.
4. To establish minimum standards of diagnostic, therapeutic and laboratory *facilities* and *equipment* for each type of hospital.

Under this section of the Health and Safety Code it is apparent that the State Department of Public Health exceeds its authority in issuing a regulation requiring hospitals to keep such specific medical records, including medication orders, progress notes, nurses' notes, diagnoses, laboratory reports, surgical records and condition of the patient.

Certainly if the department had the authority to make these regulations, then it would have the authority to inspect the records to see that they were being carried out. However, under Section 1411 the department does not have the authority, either expressed or implied, to require hospitals to keep such accurate and complete records on the patients.

Since the detailed records kept by hospitals are not required under Section 10008 of the Health and Safety Code, and since the Department of Public Health has no authority, statutory or otherwise, to require them, it is our conclusion that the opinion of the Attorney General is in error and that the Director of Public Health has no more right to examine these confidential records than anyone else.

PEART, BARATY & HASSARD

Attitude Toward Position of Red Cross in Blood Banks

The apparent disagreement between the stand of the American National Red Cross, the Blood Bank Commission of the American Medical Association, and the Blood Bank Commission of the California Medical Association, is bringing nothing but chaos and ill feeling into a very important phase of American medicine. We, the C.M.A. Blood Bank Commission, believe this misunderstanding must be resolved immediately.

The following positive program should go far to bring peace to the troubled national blood bank situation.

We, the C.M.A. Blood Bank Committee, realize the remarkable blood donor job performed by the American National Red Cross during the last war. We believe the Red Cross can, and should lead in the establishment of blood banks where necessary. We have repeatedly set forth our belief in writing. The national program is tremendous in scope and requires expert guidance and control. Adequate blood coverage for all is a must for this nation. The Red Cross deserves special commendation for gathering together the organizational and technical staff for the realization of this humanitarian program.

To augment the financing, development, and erection of regional blood banks we advocate a plan making use of the Red Cross, the Institute of Health, the Public Health Department, the American Association of Blood Banks and that most important factor, the doctor. Each one of the above groups or individuals can serve a most useful purpose. United in harmony the national plan will succeed; disrupted by bickering, the plan must eventually fail. The Blood Bank program must and will succeed.

PROPOSED OUTLINE

1. The Red Cross should build, equip and finance blood banks where needed until said banks are self-supporting. Self-support to be achieved by non-profit service charge and the request for a donor replacement. Where the slight maintenance fee cannot be met by an individual recipient, the Red Cross could assume the charge. All publicity, volunteer work such as canteen, hostess, motor corps to be the function of the local Red Cross Chapter if said chapter can handle the work.

2. Standards to be set and maintained by the National Institute of Health with the local Public Health Department being allotted the task of maintaining said technical standards of blood procurement, processing, shipping, etc.

3. Operation of the bank would be under the active control of the local County Medical Society with adequate representation of the aforementioned appropriate groups. The bank would operate at cost in a true community blood bank.

Where blood banks are started under this set-up, reciprocity and integration can be readily carried out within the state and the nation. In disaster or war the American National Red Cross would logically assume control of the banks for the duration of the emergency.

Such banks would be required to turn over to the Red Cross a certain number of blood or plasma units for research and fractionation. The Red Cross is here able to play a tremendously important role. In view of its national scope, the Red Cross should assume leadership in furthering scientific research in all matters pertaining to blood and blood derivatives. If the Red Cross will subsidize qualified workers in universities, in blood banks, in the laboratories of biologic firms, etc., a tremendous upsurge of interest would be directed to the many problems of the entire blood therapy field. This we believe is the crux of the entire picture, and one for which the American National Red Cross is preeminently fitted. Blood derivatives made under such subsidy should also be dispensed at cost and not free.

This then is our plan. It is a big plan, and calls for big men with big thoughts. It is a plan which the American Medical Association, the American National Red Cross, the National Institute of Health and every doctor can endorse, work for and bring to rapid fruition. Such a plan could create, and start in operation all the blood banks that are required in the entire nation within two years. These banks would be urged to attain self-sufficiency as quickly as possible so that funds of the Red Cross could be diverted to the unexplored field of blood research. That field is practically virgin in its exciting possibilities.

Working together as a team the Red Cross and medicine could then give complete blood coverage to all at cost.

California with its constantly expanding non-profit, integrated blood bank system, is setting a standard for the nation. However, we would welcome aid from the Red Cross in the furtherance of the above suggested plan.

JOHN R. UPTON, *Chairman*
C.M.A. Blood Bank Commission

Alameda County Blood Bank

Five months' experience in its larger quarters at 354 Hobart Street, Oakland, has given the Blood Bank of the Alameda County Medical Association ample proof that the move from its original location at Alta Bates Hospital was well advised.

Coincident with the change to the larger, specifically designed quarters, the Blood Bank intake crossed the 1,000-unit mark in monthly volume. It has remained above that figure consistently, averaging 1,073 units per month for each full month from January 1 through May 31.

Such volume virtually was impossible with the limited facilities of the previous location. The bank had been opened in December 1944 with an anticipated "case load" of no more than 250 units per month, an estimate based on a pre-bank survey in mid-1944 when hospitals in the East Bay depended entirely upon the Irwin Memorial Blood Bank or upon walking donors.

By device and ingenuity, the Blood Bank staff was able to accept occasional intake loads up to 850 units per month at the old location. At present, however, its physical plant is capable of handling up to 3,000 units per month without inconvenience to the personnel.

During the past five months the Alameda County Medical Association Blood Bank has had no difficulty maintaining adequate reserves of blood of all types, including Rh negative. Employment of professional donors whenever needed, and for specific types of blood, provides the critical control factor, which is supplemented by the "two-for-one" replacement option.

The latter method, in addition to being the source of 20 per cent of the total monthly intake of blood, also is the Alameda County Medical Association's rebuttal to proponents of "free" blood. Blood, under the two-for-one method, actually costs the recipient nothing as donation of the second unit covers the cost of processing and delivery.

Goin Testifies Against Compulsory Insurance

Testimony of Dr. Lowell S. Goin before the United States Senate Committee on Labor and Public Welfare considering proposed compulsory sickness insurance legislation, follows:

I am a practicing physician and I happen to be President of California Physicians' Service, the voluntary health care plan of California. I had as well say at once that I am in complete opposition to this legislation. I oppose it as a physician because I am persuaded that its enactment would result in a great and continuing decrease in the quality of medical care available to our people. I oppose it as an American because I am persuaded that this type of legislation is one of the final steps on the road to State Socialism. In this opposition, I am confident that I am supported by the overwhelming majority of American physicians.

Specifically, my opposition is based upon five premises which I propose to state briefly, thereafter developing each one.

1. The assumption that the health of the American people is bad is a false assumption.

2. The assumption that the enactment of compulsory sickness tax legislation would be in the interest of the public health is totally unfounded.

3. Medical care is not the sole factor in the problem of health, and there are many things that government could properly do which would benefit the health of the public far more than the proposed legislation.

4. The cost of such plans, rather lightly passed over by the President and the Social Security Administrator, are totally unpredictable and almost certain to be extremely high.

5. Voluntary health care plans, which are truly in the American tradition, are giving good medical and hospital care to our people, and must be allowed to develop unhampered by bureaucracy.

Let me now consider these points each in its turn.

1. The health of the American people is bad, perhaps, but it isn't bad just because someone in the Social Security Administration says it is. Fortunately, it is a matter which may be investigated, and in which conclusions can be based on known facts rather than on emotional statements. Consider then, if you please, that the life expectancy at birth is steadily increasing, being now about 65 years for a male and 69 years for a female. It is materially less in Great Britain, and was still less in pre-war Germany. Both of these countries have long enjoyed the blessings of compulsory sickness insurance. The death rate from diphtheria per 100,000 of population, in the last year for which comparative figures were available, was 11.6 for Great Britain, 11.4 for Germany, but in the United States, with a benighted free enterprise system of medical care, it was less than 6.0. Why? Diphtheria is both preventable and curable; why didn't the government operated medical systems produce a death rate lower than ours? In the Public Health Reports for August 1946, the United States Public Health Service presents a table showing the death rate from tuberculosis in all countries. In the United States the rate was 47 per 100,000. In England and Wales it was 62. In France it was 137, and in Russia, 160. All of these except the United States have national medical care plans, but they seem to have been quite unable to equal the performance of the United States.

Some of the most lucid statements which are used to document our bad state of national health are found in Mr. Oscar Ewing's Report to the President entitled "The Nation's Health." Perhaps I may be permitted to digress for a moment, and to wonder what magical powers are inherent with civil servants of the Federal Security Agency, which makes them so omniscient in the problems of medical care, and why their opinions so greatly outweigh those of the 197,000 physicians of America whose entire lives have been spent in acquiring professional training to cope with these problems and in the actual coping with them. Mr. Ewing begins with a dramatic statement; a statement made to order for breadlines: "Every year 325,000 people die whom we have the knowledge and the skills to save." Of these, he says, 170,000 die of communicable disease, and that we should be able to save 120,000 of them. This last figure seems to have been chosen at random, and no documentation is offered. As is not uncommonly the case, the figures are not exactly accurate. In 1945, 177,000 people actually did die of communicable disease, but in 1947 the figure had been reduced to 137,000. That the figure of 40,000 saved by our present system of medical care does not particularly bolster the case against that system is not mentioned. Perhaps this is purely coincidental. It is a fact that the death rate from communicable disease is the lowest in our entire history.

Mr. Ewing also says that we should be able to prevent 115,000 of the more than 600,000 annual deaths from cancer and heart disease. I am unable to ascertain the reason for the selection of the figure 115,000, and I suspect that it is a purely arbitrary selection. I don't know how many of the deaths were due to heart disease, but it is probably fair to assume that about two-thirds were. Is the implication that these people died because of lack of medical care a fair one? Of course it isn't. Actually, both heart disease and cancer are diseases of the latter decades of life. People eventually die of something, and the more people who live into these decades, the more will die of these diseases. If medical care is the problem, it is curious that the six states with the lowest death rate from heart disease were in the deep South, and that seven of the nine states with the highest rate were in New England. New England has more physicians, more hospital beds, more research centers, and more teaching institutions than the entire deep South. I repeat that it is most curious that the death rates should not fit the amount of medical care available.

Mr. Ewing complains of the shortage of physicians. One wonders why he believe that the enactment of a law bitterly opposed by physicians (physicians' sons are substantial part of the annual crop of new physicians), and one which experience in other countries has shown to degrade physicians, could possibly increase the number of physicians. I predict confidently that the enactment of this legislation will decrease the number of physicians produced annually, and that it will very materially lower the quality of the young men who enter medicine.

Another ill to be cured by compulsory sickness tax legislation is the inequitable distribution of doctors. There seems to be a vague and hopeful feeling that some magic inherent in this so-called social legislation will persuade doctors to leave cities, where medical schools and libraries are located; where hospitals and consultants can be found; and most of all, where a man can have the society of his peers, and go to remote hamlets where none of these things is available and where he can stagnate in intellectual loneliness. Doctors, like other people, locate themselves where they think they are most likely to succeed, and where they will be happiest. Why anyone should believe that enactment of a law will change these elementals is something of a mystery, but one which would be solved promptly if a paternal government were to direct physicians in choosing their fields of activity. Any such intent would be vigorously denied, of course, but the government of Great Britain has already assumed this right and has announced that more medical care in rural areas would be provided by paying a somewhat larger capitation fee in such areas and (n.b.) by forbidding doctors to locate in more populous zones.

2. The assumption that enactment of this legislation would be in the interest of the public health is unfounded. Fortunately for my argument (although unfortunately by other standards) we have a system of so-called compulsory health insurance in actual operation in the city of San Francisco. Set up by ordinance several years ago, it embraces more than 20,000 employees of the City and County of San Francisco. As a public duty, and as a noble experiment, the medical profession of San Francisco consented, almost to a man, to cooperate with the plan which is called "Health Service System." I see no reason to believe that a like system on a national level would function much differently than this "pilot" plan, and this is how it really works; this is what we may reasonably expect to happen once the plan begins to operate nationally. On May 28, 1947, Dr. A. S. Keenan, Medical Director of the "Health Service Plan," found it necessary to address himself to the physicians of San Francisco. He complains of over-use of the system, and urges great curtailment of the care given. The following are his own words: "People in general have more knowledge now on medical subjects. . . . It has brought about many unnecessary visits to the doctor to get treatment for trivial things. Such minor ailments could be treated as well by their home remedies as by their doctor." There, gentlemen, is a panel system in operation. The earliest, indeed the only early symptom of lung cancer is a trifling cough. Go home and take some cough medicine. The only early symptom of gastric cancer is a trifling indigestion. Take some soda. Next, the medical director complains of clinical laboratory and x-ray expense, and again I quote his words: "The people in general know little about the results that can be obtained from the help of laboratory tests or the x-ray examinations. Please, doctor, turn such requests aside. . . . It would seem that any physician, after taking a short history of his patient's case and making a routine examination will find that he can make a diagnosis without leaning so much upon the laboratories and the x-ray departments." Please note that early recognition of brain tumors requires laboratory study of the cerebrospinal fluid, and that early diabetes is recognized by the amount of sugar in blood. After complaining that it cost too much to hospitalize these unfortunate people whose pay checks were subject to compulsory deduction for the service, he says: "The members of the Health Service System, except in a few obscure cases, do not need any such extensive work." As is easily possible under the compulsory system, the director solves the problem

neatly, thus: "Hereafter no patient, except in an emergency case, will be entitled to hospital benefits under Health Service System coverage until authorization has been given by the medical director." There you have the panel system which our planners would like to institute; there you have medical care under compulsory health insurance. Personal interviews with British physicians who have been so revolted by the system that they have actually fled to the United States to start all over again, and correspondence with others who wish that they could flee, indicates that this is a completely fair picture of so-called compulsory health insurance benefiting the health of the public. If further evidence is needed, we might let Dr. Nathan Sinai furnish it. Remember that he is an able and ardent proponent of compulsory sickness tax legislation. I quote from his book *The Way of Health Insurance*, pp. 157, 158: "Contrary to all predictions, the most startling fact about the vital statistics of insurance countries is the steady and fairly rapid rate of increase in the number of days the average person is sick annually, and the continuously increasing duration of such sickness.

"Various studies in the United States seem to show that the average recorded sickness per individual is from seven to nine days per year. It is nearly twice that amount among the insured population of Great Britain and Germany and has practically doubled in both countries since the installation of insurance." To this he adds: "It seems to be a safe conclusion that insurance has certainly not reduced the amount of sickness." This surprises me, since I had naively assumed that the proponents believed that it would reduce the amount of sickness. Certainly, the words quoted comprise an excellent argument against this sort of medical care, although I doubt that Dr. Sinai meant them to be.

3. A sort of current custom is to use the terms "medical care" and "health" as if they were interchangeable—as though one were a synonym of the other. As a matter of fact, medical care is only a small part of the health problem—not even the most important part. Health consists largely in not being sick; medical care consists largely in an attempt to cure or alleviate disease. Nearly all—perhaps all—of the health legislation which has been proposed from time to time has been written by social planners, seldom, if ever, in consultation with physicians. Consequently nearly all it contains is wishful thinking and not too much reality. Too much confidence is placed in preventive medicine, too much earnest belief that periodic health examinations will prevent disease, and all the legislation evidences a complete failure to understand that preventive medicine simply has not yet attained the goals wished for. To cite a few of the problems: How shall heart disease (except that due to rheumatic fever) be prevented? What sort of health examination will be efficient in its control? How shall we prevent, or even recognize, early brain tumors? Shall everyone with a headache have encephalographic or ventriculographic studies? Shall we do gastrointestinal x-ray studies on everyone with indigestion, and, if so, where shall we obtained the skilled personnel? How are bone tumors prevented, and what periodic examination makes one aware of the pneumonia of next week? Medical care is, and will for a long time continue to be, the care of the sick, and this, I repeat, is only a fraction of the health problem. Some other fractions to which government might well turn its attention are sanitation, hygiene, health education, adequate diet, good housing, adequate clothing, working conditions and "patent medicine" control. And there are many others. If government is sincerely interested in the health of the citizen, why should it not suppress "patent medicine" advertising? Why should it not regulate cults and require that all who wish to practice the healing arts pass the same tests? Why should it not control radio publicity of nostrums, vitamins, and the like? This current legislation is attacking only a small segment of the health problem, and even if it were to accomplish all that its proponents claim, it still would not solve our health problems.

4. I shall refrain from elaborating in my statement that the costs of the proposed program are unpredictable and are likely to be extremely high. I am sure that there have been or will be witnesses much more able to cope with these problems than I, and I shall leave to them the discussion of the financial problems.

5. Voluntary health care plans have made a truly phenomenal growth. Thirty-two million people have Blue Cross insurance. Eleven million have medical care plan insurance. Twenty million more are covered by commercial carriers, and competition by Blue Shield plans has made them offer good comprehensive contracts. If permitted to do so, voluntary plans will ultimately cover a great majority of the American people. If there are rugged individualists who decline thus to protect themselves, must we compel them to do so? I seriously doubt if it is true that half the families in the United States are unable to pay for voluntary coverage. I feel sure that nearly all families can afford it if they are willing to assign a sufficiently high priority to medical care. In 1947 the American people spent three billion dollars for medical and hospital care, including drugs and services of irregular practitioners. They also spent 3.9 billions for tobacco, 9.4 billions for movies and recreation, and 9.6 billions for alcoholic beverages. Is it seriously argued that this budget could not be rearranged? And, moreover, aren't the same families going to pay for national compulsory sickness tax service? Will it be less painful to have the cost deducted from the pay check? Will the small self-employed person who wishes neither voluntary nor compulsory plan be happier when he is taxed for one?

Voluntary health plans will, if given the opportunity, do the job, and do it better than government controlled plans can do. These plans, which already include a very large number of persons, are in accord with our traditional emphasis on personal responsibility, prudence, foresight, and thrift.

They have an American dignity which is lacking in the regimentation of compulsory health insurance. They can be and are more economically administered, they can and do give better medical care, and they will be and are supported by thousands of physicians who are bitterly and unalterably opposed to government controlled medicine. In California we have made a good start. Our California Physicians' Service offers medical care at modest costs. Nearly 800,000 of our people have availed themselves of it, and appear to be quite satisfied with it. The Farm Security Administration had a medical care program for the rural indigent. California Physicians' Service took it over and gave better medical care for less money and to the satisfaction of those giving and receiving the care. California Physicians' Service has a contract with the State Grange providing medical care for nearly 100,000 farm people. These activities, which are duplicated in most of our states, are indications of how voluntary plans can meet the challenge, how they are meeting it, and how they will continue to do so with a steady and healthy growth if they are not crushed by the monster of bureaucratic control.

Supplemental Statement On "Lobbying" Charge

During recent weeks and months the American medical profession has been subjected to maliciously unfair abuse from certain advocates of compulsory health insurance, some of whom are officeholders in the federal government. Through vicious innuendo, false implication and outright distortion of fact, deliberate attempts have been made to undermine public confidence in the nation's doctors, and to make it appear that the American Medical Association is engaged in devious, unethical tactics in its opposition to national compulsory health insurance.

Very few members of Congress have been a party to this attempted smear. However, you gentlemen probably have heard or read some of the false charges. I believe that you know in your hearts that American doctors, by their very nature and training, would not take part in the questionable activities which have been implied in this scurrilous propaganda. Nevertheless, we need to clear the record with respect to these trumped-up charges.

The American Medical Association—openly, frankly, and honestly—is engaged in a national education campaign to give the people the facts about compulsory health insurance and the facts about voluntary health insurance. We frankly oppose the first and we enthusiastically favor the second. We hope and believe that the American people, given the facts, will agree with us.

In the best American tradition we are taking our case before the forum of public opinion. We are asking for a vote of confidence in the American medical profession and in the American medical system, the finest in the world. We are doing exactly what you gentlemen do at election time. We are using the same avenues of approach—the press, the radio, the speaking platform, pamphlets and leaflets, and all other accepted, ethical means of submitting our case to the people.

The Committee for the Nation's Health, the Physicians' Forum, and other groups favoring compulsory health insurance, are conducting a constant propaganda in behalf of it. For ten years or more, the Federal Security Agency and other government agencies have been spending unauthorized tax funds to thump the drum for socialized medicine. Now, however, when the American Medical Association finally strikes back at the distorted propaganda of the socializers and government payrollers, we suddenly hear unfounded and intemperate charges that The American Medical Association is invading Washington with a high-powered lobby and a huge slush fund.

These charges are absolutely false, and those who have been making them know they are false. As you gentlemen undoubtedly know, the Washington office of the American Medical Association is one of the smallest, most conservative legislative offices maintained by any of the national associations in the capital. It is staffed by men of unquestioned integrity, who are highly respected in Washington. Whitaker & Baxter, the public relations organization which is directing our national education campaign, has only one representative in Washington, and he is a press representative, not a legislative lobbyist.

The American Medical Association, in its national education campaign, is carrying its case directly to the American people in a grass roots crusade which we hope will reach every citizen in this country. By so doing, we doctors are simply exercising one of the greatest rights which Americans have as a free people—the right of petition as set forth in the United States Constitution. We are exercising that right not simply to protect the medical profession from degradation, but to protect the health of the nation.

The people have a right to know that government-controlled medicine means inferior medical care doled out according to bureaucratic regulations and rule books, ever-increasing payroll taxes, invasion of privacy and freedom of action, and destruction of the voluntary health insurance plans which provide good medical care at a lower cost than government ever could provide it.

In the final analysis, the American people, through their representatives here in Congress, will decide this issue. The objective of the American Medical Association national education campaign is to get the facts to the people. We want them to make their opinions known to their United States Senators and Representatives. We believe you want it that way.

If that is lobbying, it is lobbying in the finest American tradition, and every doctor is proud of his part in the program.

There is nothing secret or devious about this campaign. It is an open and above board public campaign on a vital public issue. The plan of campaign explaining the program has been distributed by the thousands throughout the country—not only to doctors and medical societies but also to a wide variety of interested parties, including newspapermen and magazine writers. For your information, I am filing a copy of the plan of campaign with your committee. Nearly 14,000 copies of this have been distributed all over the United States. There is nothing in our program which is secret—and you may have copies of any material we are issuing simply by requesting it.

Yet, at least one radio commentator and one Congressman, in recent public utterances, have quoted from these widely-publicized materials, attempting to give the impression that they were revealing "shocking" information from "secret" documents. Apparently depending on the same unreliable source for their information, both men referred to the fact that American doctors intended to present their case in newspapers and magazines, and that doctors were urged to write letters to any Senators or Representatives who were their personal patients. These alleged "revelations," gentlemen, are nothing short of ridiculous. Since when is it a crime to submit material to newspapers and magazines? And since when are doctors deprived of the ordinary right of any citizen to write to the men who represent them in Washington?

If there is any need for a Congressional investigation of lobbying, it is for an investigation of the government lobby which has forced the American medical profession to strike back in defense of its good name. The Harness Committee reported to the House of Representatives in 1947 that at least six agencies in the executive branch of the federal government were using government funds in an improper manner for propaganda activities supporting compulsory health insurance. The Federal Security Agency alone has become a tremendous propaganda agency for government medicine.

It seems very strange to me that when I appear anywhere to speak on this subject, some representative of the Federal Security Agency often shows up in the same town, speaking in favor of government medicine. Who pays for this? Has Congress authorized the use of federal funds for these propaganda lecture tours? Is the Federal Security Agency usurping the rights of Congress, the regularly established legislative branch of the government?

As I mentioned a moment ago, government agencies lobbying for compulsory health insurance—some of them for ten years or more—have forced the American Medical Association to embark on its national education campaign. Although the great bulk of these campaign activities and expenditures do not constitute lobbying under the terms of the Federal Lobbying Act, Public Law 601 by the 79th Congress, in the opinion of our legal counsel, the campaign directors have registered according to the letter of that law. A report of expenditures for the first quarter of 1949 already has been filed, listing separately every item over $10.00. We invite the closest possible scrutiny of all reports and records.

More than half of the time, effort and money in this campaign will be used in affirmative, positive action, designed to aid in the development of the voluntary prepaid health systems. American medicine is far more concerned with solving a problem than with simply defeating a bill for compulsory health insurance. The ultimate, long-range objective of this campaign is to make the American people more and more health insurance conscious. We want them to know that sound protection against the costs of illness is available under existing voluntary health insurance plans, at reasonable rates far below the inevitable high cost of a compulsory, tax-supported program. We want the people to know the many different hospital, surgical and medical insurance plans are working constantly to extend their benefits. Already there is a tremendous demand in this country for voluntary health insurance. The greater that demand can be made, the quicker this problem will be resolved. The great need in America is not for compulsion but for a general realization by the people that health protection is an essential item which should be given its proper priority in the family budget, and which can be so budgeted without undue financial burden.

I think I am correct in saying that several members of this committee feel the same way. A number of you gentlemen have shown a definite interest in the great progress of voluntary health insurance, and you are sponsoring legislation embodying principles which we fervently support. We think you are on the right track to an American solution of this problem.

The American Medical Association national education campaign, by alerting the people to the wisdom and necessity of handling this problem themselves, is making a contribution toward the further improvement of our national health. We believe it also is performing a service of value to Congress, by making it unnecessary for you to levy new payroll taxes and launch this nation into a dangerous experiment in government medicine. Such an adventure would impair or destroy not only the American medical system but also our national financial stability. There are other, more sensible ways to solve our problems in medical economics.

Let's stop the small-boy name-calling. Let's settle this issue like adult Americans, using the best medical and economic tools that exist on the face of this earth.

In Memoriam

ARNOLD, HUBERT ROGERS. Died in San Francisco, June 20, 1949, aged 55, of plasmacyte myeloma. Graduate of the University of California Medical School, Berkeley-San Francisco, 1922. Licensed in California in 1922. Dr. Arnold was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

✣

BACHER, JOHN ADOLPH. Died in San Francisco, April 10, 1949, aged 71. Graduate of Harvard Medical School, Boston, 1911. Licensed in California in 1911. Dr. Bacher was a retired member of the San Francisco County Medical Society, and the California Medical Association.

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BOCK, CHARLES. Died in Los Angeles, May 31, 1949, aged 79, of heart failure. Graduate of Fort Wayne College of Medicine, 1897. Licensed in California in 1903. Dr. Bock was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

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GARDNER, CLARENCE SNOW. Died in Oakland, May 27, 1949, aged 66, of coronary thrombosis. Graduate of the Jefferson Medical College of Philadelphia, 1913. Licensed in California in 1928. Dr. Gardner was a member of the Alameda County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

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HOOBLER, HAL REXFORD. Died in Oakland, June 20, 1949, aged 60, of a heart attack. Graduate of the University of California Medical School, Berkeley-San Francisco, 1921. Licensed in California in 1921. Dr. Hoobler was a member of the Alameda County Medical Society, the California Medical Association, and the American Medical Association.

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HURWITT, SAMUEL JEROME. Died in San Francisco, June 5, 1949, aged 55, of carcinoma. Graduate of the University of Kansas School of Medicine, Lawrence-Kansas City, 1921. Licensed in California in 1927. Dr. Hurwitt was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

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KALFUS, JOSEPH LELAND. Died May 4, 1949, aged 61. Graduate of the College of Physicians and Surgeons, Los Angeles, 1920. Licensed in California in 1920. Dr. Kalfus was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

✣

STANCIL, WILLIAM D., JR. Died June 2, 1949, aged 30, of pneumonia, rheumatic heart disease. Graduate of University of Colorado School of Medicine, Denver, 1944. Licensed in California in 1947. Dr. Stancil was a member of the San Francisco County Medical Society, the California Medical Association, and the American Medical Association.

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SWEELEY, GLENN GEORGE. Died in Hughson, June 2, 1949, aged 42, of a heart attack. Graduate of the University of Southern California School of Medicine, Los Angeles, 1941. Licensed in California in 1941. Dr. Sweeley was a member of the Stanislaus County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

✣

WILBUR, RAY LYMAN. Died in Palo Alto, June 26, 1949, aged 74, of coronary occlusion. Graduate of Cooper Medical College, San Francisco, 1899. Licensed in California in 1899. Dr. Wilbur was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Ray Lyman Wilbur

1875 - 1949

The recent death of Ray Lyman Wilbur in his seventy-fifth year has deprived California Medicine and American Medicine of one of their most impressive figures. Dr. Wilbur's active career almost exactly coincided with the first half of the twentieth century, during which medicine has made greater advances than in any corresponding period in its history. Perhaps no man had as great an influence in directing the course of this development as did he.

Dr. Wilbur was graduated from Stanford University with an A.B. degree in 1896 and received his A.M. degree in physiology in the succeeding year. In 1899 his M.D. degree was conferred by Cooper Medical College, which later became the Stanford University School of Medicine. He served as instruc-

tor in physiology at Stanford from 1896 to 1897 and as lecturer and demonstrator in physiology at Cooper Medical College from 1899 to 1900. In the latter year he was appointed assistant professor of physiology at Stanford and held this post until 1903. During the period of 1901-1902 he served as acting head of the department of hygiene at Stanford.

While teaching and working in the physiology department at Stanford, he engaged to a limited extent in general practice in Palo Alto. A serious typhoid epidemic in that area in 1903 caused him to forsake a career in physiology and to devote full time to the practice of medicine. During the epidemic he acted as deputy county health officer and with characteristic directness and effectiveness was largely responsible for its control.

Until 1909 he engaged in general practice in Palo Alto, and his practice, later combined with that of Dr. Thomas Williams, furnished the nucleus for the present Palo Alto Clinic. In 1903 he went to Europe to study in Frankfort and London, and in 1909 studied internal medicine at the University of Munich.

Upon his return from Europe, Dr. Wilbur was made professor of medicine in the Stanford University School of Medicine. He became dean in 1911, and held both positions until he became president of the University in 1916.

As dean, he reorganized the medical school and initiated new methods of teaching. He was responsible for the introduction of full-time faculty members to partially replace the part-time clinical professors and instructors. It is, however, primarily as a clinician and a teacher of medicine that he is remembered by his former students.

Vast knowledge of scientific and clinical fact was stored in his unusual memory and was arranged in such orderly manner that it was immediately available for use when occasion demanded. To this were added thoroughness, keen observation, logic, sound common sense and rapid and accurate thought processes which made him an outstanding clinician. The combination of these qualities with an understanding of mankind, an interest in the individual patient and inherent kindliness made him a beloved physician.

Dr. Wilbur's personality and dramatic methods of teaching left such an impression upon his students that many can recall vividly today the lessons learned in his clinics and ward rounds. He was an outstanding teacher of students and young physicians.

During the years he was engaged in clinical medicine he made numerous worthwhile contributions to the medical literature. He was one of the first to recognize muscle spasm as an early diagnostic sign in poliomyelitis.

In 1912, in association with Dr. Thomas Addis, he published a paper on "Urobilin; Its Clinical Significance." The Wilbur-Addis method of determination of urobilin remained the standard procedure for 25 years.

His work on botulism was one of the earliest American contributions to the recognition and diagnosis of this disease and importantly augmented knowledge and understanding of this condition. It initiated the laboratory work by others which led to the establishment of safe methods of canning food and thereby saved a great industry.

Dr. Wilbur's profound interest in clinical medicine and his love of teaching caused him to accept the presidency of Stanford with great reluctance and after long thought. An intimate friend since his college days described this decision as the most difficult he was ever called upon to make. He, likewise, accepted a post in the cabinet of President Hoover only after protracted urging because of his unwillingness to leave Stanford if only temporarily. In 1933 he resumed his duties at Stanford and continued as president until he became chancellor in 1943.

His record as president of Stanford and as Secretary of the Interior stands as a great contribution to education and to public service. Both posts brought heavy responsibilities and many demands upon his time. Neither could absorb or destroy his interest in medicine. He was always able to find space in his crowded schedule to render important aid to the various fields of medical endeavor. His efforts on behalf of his profession and those served by it began early in his career and terminated only with death.

Dr. Wilbur served as a member of the California State Board of Medical Examiners in 1902 and 1903. He was chairman of the Section on Pharmacology and Therapeutics of the A.M.A. in 1912 and 1913, and was a member of the House of Delegates in 1914 and 1915.

In 1920, he became a member of the Council on Medical Education and Hospitals and served in this body continuously until 1946, with the exception of the years 1923 and 1924, when the Association honored him by electing him President. He filled the office with distinction and reflected great credit upon the Association.

Following his term as President, Dr. Wilbur resumed activity in the Council on Medical Education and Hospitals and served as chairman until 1946. In this capacity he was largely responsible for the development of standardization of hospitals, internships, residencies and in the planning of graduate training. The graduate phases of medical education were always matters of great interest to him.

His annual reports as chairman of the council and his addresses to the annual Congress on Medical Education, Licensure and Hospitals constitute a comprehensive history of the evolution of medical education for the period. Each report not only summarized the accomplishments of the preceding year but brought up problems needing solution and projected the activities to be undertaken in the coming year.

Dr. Wilbur's vision and foresight are well shown in these documents, which also demonstrate his great understanding of the fundamental bases of medical education and practice. The present high standard of medical education and medical care in this country, which are unequaled in the world, are largely attributable to the council under his chairmanship.

One of the other members of the council in personal communication has stated that the achievements of this body stemmed from Dr. Wilbur's wisdom and his determination that substantial and continuous elevation of standards be made. Had he rendered no other service to American Medicine, his guidance of the council during these important years would have constituted a magnificent contribution.

In his devotion to continuous improvement of medical education and standards of practice, Dr. Wilbur did not lose sight of the need for the wide application of the benefits of medical care. Between 1927 and 1935 he served as chairman of the Committee on the Costs of Medical Care. The final report of this committee included conclusions and recommendations which became matters of controversy in medical circles. Dr. Wilbur's address at the New York Academy of Medicine in November 1932, dealing with the recommendations, was an example of his grasp of the subject.

In that presentation he displayed a unique understanding of people and their needs, of physicians and their problems, and of medical practice and medical institutions. He expressed the conviction that the medical profession could and would solve the problems of medical care in an American voluntary way. Many of the ideas expressed at that time have since become generally accepted by the medical profession.

Dr. Wilbur's address to the California Medical Association in April 1933, entitled "Medicine at the Crossroads," carried these concepts further and called upon the medical profession to provide for wider distribution of medical care on a budget basis. He pointed out that if we failed, the alternative would be for the government to attempt to do the job. He was well aware of the disastrous results of bureaucratic control of medicine. Few physicians in 1933 had the vision to see as far into the future.

His interest and insight into the problems of the distribution of medical care and his distinguished record of accomplishment made him the logical choice as president of California Physicians' Service when it was founded in 1939. While he was not the architect, it was based on his ideas.

In spite of his many duties and the trials which beset the president of a privately endowed university in a period of economic depression, he undertook the task with enthusiasm and became the leader of the first statewide, medically sponsored prepayment plan. He continued in this office until 1945, and gave generously of his time and effort.

The tremendous recent growth of similar plans throughout the nation is final confirmation of the wisdom of the course he charted in 1933. They now constitute a major bulwark against the enactment of compulsory sickness insurance and the advance of socialism, a governmental concept which he abhorred.

Dr. Wilbur gave freely of his time and energy to many other fields of medicine. He served as trustee of the Rockefeller Foundation and as a member of its general education board from 1923 to 1940. He acted as chairman of the White House Conference on Child Health and Protection from 1929 to 1931.

He was also a member of the boards of the Austin Riggs Foundation and the Nutrition Foundation. He acted as chairman of the Baruch Committee on Physical Medicine. He was chairman of the Medical Advisory Board of the United States Veterans Bureau from 1924 to 1929, and a member of the board of the Leprosy Foundation.

Dr. Wilbur was president of the American Academy of Medicine in 1912-1913, and of the California Academy of Medicine in 1917-1918. He served for many years as a member of the executive council of the Association of American Medical Colleges and was its president in 1924.

He was interested in the medical and social aspects of syphilis and acted for many years as president of the American Social Hygiene Association which awarded him the William F. Snow medal in 1943 for "distinguished service to humanity." During both World Wars he served in an active or advisory capacity to numerous agencies of government dealing with medical care and allied subjects and subsequently as a member of the task force on medical services of the Commission on Organization of the Executive Branch of the Government.

He was an outspoken advocate of freedom in medical research and was a fellow of the American Association for the Advancement of Science and had membership in the American Association of Bacteriologists and Pathologists and the Association of American Physicians. Possessing a well-trained and scientific mind, he encouraged and aided others to greater scientific development.

Dr. Wilbur was a member of Phi Beta Kappa, Sigma Xi, and Alpha Omega Alpha. Decorations were bestowed upon him by the governments of France and Belgium and he received the honor cross of the German Red Cross.

He was the recipient of honorary degrees from the universities of California, Arizona, Illinois, Pennsylvania, New Mexico, Pittsburgh, Chicago, Maryland, Princeton, Rochester, Puerto Rico, New York, Yale, and Southern California, the University of the State of New York, and Dartmouth, Wesleyan, and Tusculum colleges. Syracuse and Western Reserve universities conferred the degree of Doctor of Science upon him and Hahnemann Medical College awarded him the degree of M.A. in medicine.

Dr. Wilbur was a staunch opponent of Federal control of education and medicine. He knew both intimately as a result of his long association with them and he knew from his Washington and other experiences the "mortmain of bureaucratic control" as he called it. He was one of the first educators to become alarmed over the tendency of the Federal government to extend its influence by supplying funds to educational institutions. He spent a large portion of his last two years in an attempt to organize a private agency which would undertake to finance medical schools and colleges in need.

In spite of failing health, he remained active in his opposition to state and Federal plans to socialize medicine. He conditionally accepted the chairmanship of the meeting initiating the Northern California Campaign against the Truman Program. When he found he would be unable to attend he wrote, "It now appears that I shall be unable to be with you Friday night. I regret I cannot be more active at present. Keep up the fight! Should the politicians succeed in socializing medicine it will mean the destruction of the America we have known in our active years."

It was my privilege to come to know Dr. Wilbur increasingly well during his latter years and to discover hitherto unseen facets of his character and personality. His fine and disciplined mind was continuously cause for admiration. He had breadth and depth of vision and imagination but was never impractically visionary. He believed in sound, steady evolutionary progress based upon knowledge and reasonable experimentation. His scientific background made him impatient with the emotional and purely theoretical approaches to any problem and he would destroy such with deft strokes of logic.

Dr. Wilbur had great strength of character, deep convictions and intense loyalty to those persons and principles in which he believed. He possessed unusual warmth of personal friendship, a dry whimsical humor and a fund of appropriate anecdotes which enlivened meetings with his friends.

He was a great man in every sense of the word. It is doubtful that anyone has made an equal contribution to American Medicine during the first half of this century.

John W. Cline

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NEWS and NOTES

NATIONAL • STATE • COUNTY

CONTRA COSTA

Official appointment of **Dr. George Degnan** as medical director of Contra Costa County Hospital was announced last month by the county board of supervisors following a court ruling upholding the board's right to make the appointment outside the purview of civil service regulations. Dr. Degnan had held the post on an acting status since last September, succeeding Dr. E. A. Merrithew who resigned after 35 years of service.

LOS ANGELES

Grants aggregating $11,820 for **research in heart disease** were announced last month by the Los Angeles Heart Association and the heart division of the Los Angeles County Tuberculosis and Health Association. **Recipients** were Dr. Thomas H. Brem, Birmingham Veterans Hospital; Dr. Harry C. Goldblatt of the Cedars of Lebanon Institute for Medical Research; Dr. George C. Griffith, clinical professor of medicine, University of Southern California Medical School; Dr. Helen E. Martin, associate professor, University of Southern California Medical School; Dr. Travis Winsor of the Nash Foundation, Hospital of the Good Samaritan, and the physiology department, University of Southern California, for a project under the supervision of Dr. Douglas R. Drury.

* * *

The Los Angeles City Health Department has established a laboratory to aid in the diagnosis of **viral and rickettsial disease**, at the Children's Hospital, 4614 Sunset Boulevard, in cooperation with the Children's Hospital Society, the communicable disease center of the U. S. Public Health Service, and the department of infectious diseases of the School of Medicine, University of California at Los Angeles.

Blood tests such as complement fixation tests, hemagglutination and inhibition tests, in addition to neutralization tests developed in the past few years will be performed, thereby providing laboratory aid for the physician in the differential diagnosis of several infectious diseases endemic in the area.

Information as to the specimen of blood needed for tests and as to data that must be supplied with requests for the service may be had by telephoning OLympia 1181, Extension 4.

SAN BERNARDINO

Dr. Ralph J. Campbell discussed the compulsory health insurance program in England at a large open-air supper meeting of newspaper publishers, editors, radio station owners, officers of service clubs and chambers of commerce, as well as physicians, which was held in June under the sponsorship of the **San Bernardino County Medical Society.** The speech was extremely well received, according to a report from the secretary of the society, and was followed by a question-and-answer period of about two hours, during which most of the questions were from others than physicians.

"We have received nothing but **favorable comments from all the newspapers** and all our guests," the society secretary reported.

SAN DIEGO

An American Cancer Society medal with a citation for "distinguished service in the control of cancer" was presented to **Dr. Lyell C. Kinney** at a recent meeting of the board of directors of the society's California division in Bakersfield. Dr. Kinney, who is chairman of the executive committee of the California division, is also chairman of the Cancer Commission of the California Medical Association.

SAN FRANCISCO

Two new appointments to the faculty of Stanford University School of Medicine have been announced. **Dr. Robert H. Alway**, associate professor of pediatrics at the University of Utah Medical School, will assume a similar position at Stanford September 1, and on the same date **Dr. Lyman M. Stowe** will become professor of obstetrics and gynecology. Dr. Stowe at present is on the staff of the Yale University School of Medicine.

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The Harold Brunn Institute for Cardiovascular Research has been awarded a grant from the American Heart Association to support studies by **Dr. John J. Sampson** on the relationship of changes in plasma and tissue sodium to development of shock in myocardial infarction.

* * *

A grant of $239,500 to the University of California was awarded last month by the National Foundation for Infantile Paralysis to finance a five-year **research project on poliomyelitis.** The studies, which will be under the direction of Dr. Wendell M. Stanley, director of the virus laboratory at Berkeley, will be concentrated on determining the chemical, biological and physical characteristics of various viruses, including that of human poliomyelitis.

* * *

Award of $8,200 to support cancer research by **Dr. Gerson R. Biskind**, chief of laboratories at Mt. Zion Hospital, was announced last month by the U. S. Public Health Service. The grant was made under the direction of the National Advisory Cancer Council.

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The executive committee of the American Medical Association has appointed **Dr. John W. Cline** as a delegate to the World Medical Association meeting which is to be held in London, October 6 to 14.

SAN MATEO

Community Hospital in San Mateo has been certified for residencies in surgery by the Council of Education and Hospitals of the American Medical Association, Dr. Harold Marks, superintendent of the hospital, announced last month.

SUTTER

Dr. Joseph Lee last month was appointed medical director and superintendent of the Sutter County Hospital to succeed Dr. Edmond V. Minasian who recently resigned from that position.

GENERAL

The Sixth Inter-American Congress of Surgery will meet as a part of the 35th Clinical Congress of the American College of Surgeons from October 17 to 21, in Chicago, and will continue on October 21, 22, and 23 with its own business, scientific, and social sessions. This will be the first time that the Inter-American Congress of Surgery has been held in the United States.

* * *

The American Congress of Physical Medicine will hold its 27th annual scientific and clinical session September 6-10, 1949, at the Netherland Plaza Hotel, Cincinnati. All sessions will be open to members of the medical profession in good standing with the American Medical Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

POSTGRADUATE EDUCATION NOTICES

University of California, Los Angeles

Listing of courses not available.

Contact: Office of Medical Extension, University of California, Los Angeles 24, California.

University of California, Medical Center, San Francisco

Course: Medical Aspects of Nuclear Energy.

Date: August 29 through September 3, 1949. Fee: $60.00.

Contact: Stacy R. Mettier, M.D., Medical Extension, University of California Medical Center, San Francisco 22, California.

Course: Physics in Radiation Therapy.

Date: September 6 through September 9, 1949.

Of interest to radiologists, dermatologists, gynecologists, and physicians dealing with radioisotopes.

Course: Otorhinolaryngology, a continuation of 1947 course for specialists.

Date: September 5 through September 9, 1949. Fee: $60.00.

Course: Ophthalmology, a continuation of 1947 and 1948 courses for specialists.

Date: September 12 through 17, 1949. Fee: $60.00.

Course: Oncology—Newer Aspects.

Date: September 12 through September 14, 1949. Fee: $40.00.

University Southern California Medical School

Listing of courses not available.

B. O. Raulston, M.D., Dean, 1200 N. State Street, Los Angeles 33, California.

College of Medical Evangelists

Listing of courses not available.

H. M. Walton, M.D., Dean, Graduate School of Medicine, Boyle and Michigan Avenue, Los Angeles 33, California.

Stanford University School of Medicine

Morning courses, Monday through Friday, 8:30-12:00: Courses on General Surgery, Internal Medicine, Dermatology and Fractures.

Afternoon course, Monday through Friday, 1:30-5:00: Courses on Surgical Anatomy and Operative Technique, Laboratory Diagnosis, Endocrinology, and Surgical Specialties.

Full Day courses, Monday through Friday, 9:00-12:00 and 2:00-5:00: Courses on Anesthesiology and Clinical Ophthalmology.

Dates: September 19 through 23, 1949. Fee: $75.00.

Contact: Dean, Stanford University School of Medicine, 2398 Sacramento Street, San Francisco 15, California, before September 1, 1949.

California Heart Association—1949 Symposium

Guest speakers will be Dr. William Dock, professor of medicine, Long Island College of Medicine, Brooklyn, and Dr. Arnold R. Rich, department of pathology, Johns Hopkins University, Baltimore.

A full announcement of the program will be in the September issue.

Dates: San Francisco: October 12 through 15, 1949. Los Angeles: October 18 and 19, 1949.

INFORMATION

Foundation for High Blood Pressure Research Seeking Urgently Needed Funds

Members of the medical profession are fully aware of the need for research in solving the problems of hypertension, arteriosclerosis and related diseases.

The American Foundation for High Blood Pressure Research has as it sole purpose the raising of funds to be used directly for this purpose. Organized three years ago by a group of Cleveland business and industrial leaders, the foundation has been carrying on a quiet campaign for research funds in a limited number of cities. It concentrates its efforts in appeals to corporations and to wealthy individuals who have a personal interest in hypertension.

Because of the tremendous stake industry and business have in the problem, due to the high deathrate among top-ranking executives, corporations have participated generously in contributions. Believing in the importance of research from a business point of view, they also see the value of corporate contributions as a public service which can be justified—an investment in America's economic health and the human welfare of the nation.

A national survey recently conducted by the foundation among all institutions carrying on research in hypertension revealed that $1,000,000 per year, in addition to funds now available, is urgently needed for personnel and equipment to carry on vital research projects.

The purpose of the American Foundation for High Blood Pressure Research is to meet this need. Its methods of operation guarantee the efficient and wise use of every dollar contributed through it for research. It is governed by two bodies: A board of trustees, composed of business and industrial leaders, and a medical advisory council, composed of 30 top-ranking medical specialists actively engaged in research.

All grants made by the foundation are awarded on the recommendation of an independent allocations committee appointed by the medical advisory council. Research organizations of proven need—laboratories, medical colleges, hospitals, clinics—throughout the United States and Canada are eligible for grants.

The foundation operates in close cooperation with the American Heart Association. To strengthen the work of the two organizations in their related fields, amalgamation was recently approved by the boards of trustees of both groups, and will take effect as soon as membership and legal technicalities have been cleared. At that time, the foundation will become the Council for High Blood Pressure Research of the American Heart Association. Meanwhile, the foundation is continuing its fund-raising efforts with the approval and cooperation of the American Heart Association and its affiliates.

In the Los Angeles area a quiet fund-raising effort is now under way, with responsibility being carried by a small committee of business and industrial leaders headed by Mr. Donald Nelson. In San Francisco, a similar effort is under way with Mr. William D. Pabst as chairman. Both Mr. Nelson and Mr. Pabst are members of the board of trustees of the foundation. Approaches are limited to corporations and wealthy individuals.

It is important to have all members of the medical profession fully informed of plans for this undertaking. Dr. William J. Kerr is chairman of the medical committee for the San Francisco area, and Dr. Lewis T. Bullock is acting in a similar capacity for the Los Angeles area. These men will be very grateful for any suggestions which will help the various committees to reach prospective contributors for this highly important and worthy cause.

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BOOK REVIEWS

MIDWIFERY. By Ten Teachers, Under the Direction of Clifford White, M.D. Edited by Clifford White, Frank Cook and William Gilliatt. Eighth Edition. The Williams & Wilkins Company, 1948. $6.00.

This book was obviously written as an introduction to obstetrics for medical students, midwives and obstetrical nurses. Similar books are not to be found in the United States. The book contains the necessary chapters to cover the material thoroughly and the present revision is up to date with concise information concerning the Rh factor, virus infections in pregnancy, and the use of estrogens in the diabetic patient. Indications for episiotomy are at variance with the American literature and the chapter concerning the toxemias does not give the complete medical regimen as used on this continent. No mention is made of extraperitoneal cesarean section.

This textbook will undoubtedly be welcome in the British Isles. However, in this country it falls short of being what teachers would want for medical students, and it is too advanced for nurses' training schools.

* * *

FUNDAMENTALS OF INTERNAL MEDICINE. By William Mason Yater, M.D., Director, Yater Clinic, Washington, D. C., formerly Professor and Director of the Department of Medicine, Georgetown University School of Medicine, Third Edition. Appleton-Century-Crofts, Inc., N. Y., 1949.

This third edition of Yater's book may be readily recommended for medical students and general practitioners. It is not intended to replace the textbook of medicine nor does it attempt to give detailed presentations of various diseases. Unusual in a textbook of medicine are the sections on diseases of the skin, ear, eye, and dietetics, the chapter on symptomatic and supportive treatment, and the final chapter on "the physician himself."

Other worthwhile features of the book include the many tables of different diagnoses, the physiological and pathological correlations, the succinct diagnostic summaries in large type at the end of each topic, and the many illustrations. The quality of the reproductions could be improved in comparison to that seen in other texts.

There is an excellent section on electrocardiography in this new edition that brings up to date the newer concepts of unipolar leads according to the Wilson school. It is the best chapter on the subject in any textbook of medicine now available.

* * *

CLINICAL AUSCULTATION OF THE HEART. By Samuel A. Levine, M.D., Clinical Professor of Medicine, Harvard Medical School, and W. Proctor Harvey, M.D., Research Fellow in Medicine, Harvard Medical School. W. B. Saunders Company, Philadelphia, 1949. $6.50.

This is the first book about clinical auscultation of the heart which makes full use of phonocardiographic records to illustrate the nature of auscultatory findings. This is one of the logical uses of phonocardiography, and its use for this purpose is similar to that of electrocardiograms or jugular pulse tracings in teaching the clinical recognition of arrhythmias.

The book is well written and covers thoroughly and systematically all manner of auscultatory phenomena. It should be of value to any student or physician in any way concerned with auscultation of the heart, and even the physician who fancies himself an expert on auscultation is likely to find something new and interesting. A well-arranged index enables one to turn quickly to a discussion of any given topic.

CRITICAL STUDIES IN NEUROLOGY. By F. M. R. Walshe, M.D., F.R.S., Fellow, Royal College of Physicians, London; Physician to University College Hospital, Physician to the National Hospital for Nervous Diseases. The Williams and Wilkins Company, Baltimore, Md., 1948. $4.50.

Although the individual contributions that make up this compilation of some of Walshe's recent work are all available in the medical literature, it is a pleasure to have them collected and at hand for leisurely contemplation. The book would be well worth while if it contained only the last chapter, which embodies Walshe's thoughts on present-day specialization. In this he deals with the present tendency to accumulate facts by research faster than they can be appraised and fitted into the framework of knowledge. In spite of the fact that one comes away with the impression that some of his argument in this regard may be an attempt on his part to justfy the somewhat philosophical trend of his own contributions, the wisdom of his thesis must be admitted.

The bulk of the volume deals with a critical evaluation of our knowledge regarding specificity of sensation, and the voluntary motor system, both subjects with which the author is thoroughly familiar. The treatment is sufficiently nontechnical to be of interest to not only the neurologist but to the informed physician as well.

* * *

ATLAS OF ORAL AND FACIAL LESIONS and Color Film Library. By Ralph Howard Brodsky, D.M.D., Consulting Oral Surgeon, Department of Hospitals, New York City. 129 pages and 100 color slides in a plastic slide case. The Williams and Wilkins Company, Baltimore 2, Md. $80.00.

It is difficult to comment on this work without appearing to discourage a very commendable effort. The method used had great pedagogical promise, but in this pioneering example the full potentialities have not been realized.

The text is obviously written around a set of slides, and while the information presented is basically correct, in many instances it is not sufficiently detailed, and differential diagnosis is neglected. An opportunity is lost in not presenting the microscopic pathology of those conditions which lend themselves to such demonstration.

There is danger in such a superficial treatment of these visible lesions of the face and mouth, many of which look quite similar on the slides. The original slides are no doubt excellent but the color of the reproductions furnished the reviewer is not perfect. It would seem that the eighty dollars charged for the set could be better spent in starting a personal collection of original slides.

* * *

HANDBUCH DER DROGENKUNDE—ERKENNUNG, WERTBESTIMMUNG UND ANWENDUNG. By Franz Berger, Wien. In six volumes. Vol. I—Untersuchungsmethoden, cortices—flores. Verlag Wilhelm Maudrich, Wien, 71, Spitalgasse 1B. 1949. $10.00.

This is a book for pharmacists. It deals entirely with pharmacognosy, i.e., chemical, physical and microscopic methods of identifying, assay of constituents in, and general uses of, crude drugs. This particular volume deals with barks and flowers, which are well illustrated grossly and microscopically. Many of the drugs listed are obsolete. There is nothing of interest in this compilation to pharmacologists or physicians. The author is a department head in a school for druggists in Vienna and a member of a commission for drug standardization, and undoubtedly speaks with authority about the subject matter discussed.

PAIN SYNDROMES: Treatment by Paravertebral Nerve Block. By Bernard Judovich, B.S., M.D., Instructor in Neurology, Graduate School of Medicine, University of Pennsylvania, and William Bates, B.S., M.D., Professor of Surgery, Graduate School of Medicine, University of Pennsylvania. Third Edition. 181 Illustrations. F. A. Davis Company, Philadelphia, Pa., 1949. $6.00.

This book is an unusual monograph on the interpretation of pain. The authors believe that the presence of tenderness, and its distribution, whether local or segmental, is of great aid in diagnosis and therapy. Their premises are that the combination of segmental pain and tenderness are usually due to factors which irritate roots, ganglia or trunks of the spinal sensory nerves, rather than to painful impulses originating in diseased viscera. In other words, pain and segmental tenderness of skin in most instances appears to them to be of somatic rather than of visceral origin.

As in many theses, sometimes the implications go beyond the demonstration of the proof. However, the book has much to offer. In Chapter II, for example, the desirability of improvement of posture is emphasized and the way to accomplish it is pointed out. In Chapter IX it is brought out that pronounced pain and tenderness of the abdomen, as a cardinal symptom, is not caused by adhesions unless other symptoms are also present. In chapters III and VIII the authors return again and again to their main thesis, that persistent segmental pain is the result of lesions in or affecting the spinal nerves. In Chapter VIII, too, are developed arguments against the Head-McKenzie theory of visceral sensory reflex pain and the reliability of Murphy's sign.

The last portion of the book is given to the technique of injection for neuralgia. The photographs and diagrams are numerous, clear and helpful.

The book is essentially a clinical exposition. It is worthwhile and useful for the internist, the surgeon, the orthopedist, the gynecologist and especially the general practitioner. If its tenets are followed, many an inoffensive gallbladder, appendix, uterus and ovary will be spared.

* * *

OUTWITTING YOUR YEARS. By Clarence William Lieb, M.D., Prentice-Hall, Inc., N. Y., 1949. $2.75.

This book is apparently designed for the lay reader who has passed his fiftieth year, noted the slowing-up processes of age, and become unduly alarmed by them. The author endeavors, at great length, to allay these fears and develop a philosophy of life which will enable the aging individual to exploit the advantages of age and minimize its hardships. Most of the material contained in the book is medically sound, but it is accompanied by such a "pollyannaish" attitude that one wonders how effective it would be with the intelligent reader. It should certainly be read by the physician before he indiscriminately recommends it to his older patients.

* * *

ATLAS OF PERIPHERAL NERVE INJURIES. By William R. Lyons, Ph.D., Associate Professor of Anatomy, University of California Medical School, and Barnes Woodhall, M.D., Professor of Neurosurgery, Duke Medical School, Durham, North Carolina. W. B. Saunders Company, Philadelphia, Pa., 1949. $16.00.

This handsome book of 339 large pages, well printed, and with 135 beautiful full page plates, mostly of photomicrographs, presents an excellent picture of the histopathology of injured nerves. It is essentially an atlas of factual histological findings and is studiously free from personal opinions of the authors. It is not a book that can be easily read, but if painstakingly studied, an excellent conception is gained of the microscopic processes that occur in injured and repaired nerves. By thought on the part of the reader, conclusions may be reached on the causes of success or failure in nerve repair. It is a presentation of the microscopic findings in 1943 to 1945 mostly from specimens from some of one thousand nerve operations performed on war injuries in Halloran and Walter Reed general hospitals.

The findings are detailed and accurately described in chapters on the following subjects: The normal nerve, the completely severed nerve, traumatic nerve lesions in continuity, sutured nerves, and nerve grafts. The description of the histology in the normal nerve is excellent. The chapter on the completely severed nerve gives a complete picture of what takes place in the proximal and distal nerve stumps, in the surrounding tissue, and in the healing by nature's effort to repair. New axones are shown growing down both epineural, intrafascicular regions, and perineural sheaths, thus arguing that patency of the tubules is not essential for regeneration.

Under traumatic lesions in continuity are well shown the causes for non-regeneration, such as atrophy, collagenization, etc., in nerves injured by partial severance, strangulation by adhesions, pressure, traction, and ischemia. The degree and kind of lesion that causes nerve block and just how much a nerve can be expected to repair are well shown. The attempt is made to classify lesions according to the conceptions of Sedden and Thornburn. In the lesions of continuity shown there is such a preponderance of fibrosis over proliferation of neurites that it seems best when in doubt to resect and suture.

The chapter on sutured nerves shows, of necessity, such a predominance of specimens of junctures that failed that one must resist acquiring a pessimistic viewpoint. It portrays well the various causes of failure, such as insufficient resection, poor fibrotic junctures as in the presence of infection, large silk interneural sutures, the use of wrappers, stretch fibrosis, and separation because of too early or too strenuous traction. Some dire effects from the use of tantalum foil are shown but the condemnation of this nonsurgical procedure is all too feeble. Considering that, as stated, in 2,348 cases of nerve suture out of the 6,364 reported, foil was wrapped about the juncture, the percentage of good results in nerve regeneration in World War II will be materially reduced. Even a wrapper of fibrin film was found to be bad. The findings in this chapter argue for accuracy of nerve suture, the use of fine suture material in the sheath only, freedom from tension, and placement of the juncture free from wrappers or surrounding scar into a bed of good tissue.

The chapter on nerve graft shows many specimens from cases in which there was no regeneration. This is not surprising as in the cases reported of the 67 grafts done in World War II, most were of fresh or frozen homografts. Specimens from only five autografts were studied, and of these two were reported. One was too large a nerve to become nourished and the other was a cable graft unfortunately surrounded at its ends by tantalum foil.

This book, emanating from World War II and the product of great painstaking and honest effort, is a valuable record and contribution to a clear conception and knowledge of nerve injuries.

* * *

MICROBIOLOGY AND MAN. By Jorgen Birkeland, Ph.D., Professor of Bacteriology, Ohio State University, Columbus. Second Edition. The Williams and Wilkins Company, Baltimore, Md., 1949. $5.00.

As the author states . . . "this book is intended for the student who plans to take but one or two courses in microbiology." Although this book is definitely not written for the physician or even the medical student, it nonetheless fills the need for a well-written, authoritative book on the subject of microorganisms, particularly those producing disease, which can be read with profit by anyone interested in obtaining a general background in this field. The style is unusually lucid and informative and examples and illustrations are singularly well-chosen. In the field of elementary microbiology, this book is highly acceptable.

THE PHARMACOLOGIC PRINCIPLES OF MEDICAL PRACTICE—A Textbook on Pharmacology and Therapeutics for Medical Students, Physicians, and the Members of the Professions Allied to Medicine. By John C. Krantz, Jr., Professor of Pharmacology, School of Medicine, University of Maryland and Secretary of the General Committee of Revision of the United States Pharmacopoeia, and C. Jelleff Carr, Associate Professor of Pharmacology, School of Medicine, University of Maryland. The Williams and Wilkins Company, Baltimore, Md., 1949, 980 pp. $10.00.

This book fills a definite need for an up-to-date text and reference volume on the fundamentals and practical applications of pharmacology. It should be of especial interest to medical practitioners, who are often unable to secure information regarding the more recent drugs unless they possess the most recent edition of Sollmann.

The book is organized primarily on the basis of physiological systems, with sections on the skin and mucous membranes, central nervous systems, autonomic nervous system, heart and circulation, etc. In addition there are sections on general aspects of pharmacology (drug administration, response of cells to drugs, etc.). An interesting feature not found in most pharmacology books is a collection of photographs of well-known scientists who have contributed greatly to progress in this field.

Examples of some of the more recent drugs discussed include methadon, antiomaline, chlorguanide, chloroquine, diasone, dibenamine, dihydroergotamine, folic acid, furacin, marfanil, myanesin, nitrogen mustards, promin and promizole, and some of the antihistaminics (benadryl, pyribenzamine, neoantergan, tramine, thephorin, and histadyl). In general, the newer drugs which are actually used in medical practice are quite well discussed. There is little or no information, however, on aureomycin, chloromycetin, several of the newer antihistaminics (neoheteramine, trimeton, and others), or *p*-aminosalicylic acid. In addition, there is no discussion of procaine-penicillin or procaine-penicillin with aluminum stearate. U.S.P., N.F., and N.N.R. drugs are so designated, and the proprietary names are also given for these agents.

Emphasis is placed more or less equally on the basic pharmacology and on the practical applications (including dosages and administration) of drugs. In a number of cases there are short sections on mechanism of action, including some work on the biochemical aspects of drug action. It would have seemed advisable, however, to have expanded the discussion of mechanisms, especially from the standpoint of maintaining the student's interest in the subject. Structural formulae are given for most of the drugs discussed. Although literature references are not extensive (about ten per chapter), they are well selected with especial emphasis on review articles and recent publications.

The book appears to be quite free of errors, although it was noted that the structure labeled cannabidiol (p. 472) is actually tetrahydrocannabidiol; the statement that cannabidiol evokes the typical narcotic effect of marihuana is untrue.

The volume is very well bound and printed.

* * *

1948 YEAR BOOK OF GENERAL THERAPEUTICS. Edited by Oscar W. Bethea, Ph.M., M.D., Professor of Clinical Medicine, Tulane University School of Medicine (retired). The Year Book Publishers, Inc., 1949. $4.25.

This year book follows the traditional policy of the Year Book series and consists of pertinent summaries of the significant articles on therapeutics in internal medicine that have appeared during the preceding year. Brief editorial comment is appended from time to time, adding to the value of the discussions.

The book can be recommended as a review of the significant therapeutic advances of the previous year. It is the belief of the reviewer that even more critical editorial comment would be preferable.

NUTRITION AND DIET IN HEALTH AND DISEASE. By James S. McLester, M.D., Professor of Medicine, University of Alabama, Fifth Edition. W. B. Saunders Company, Philadelphia, 1949. $9.00.

The general practitioner and internist alike should welcome a new edition of this very fine book. The author has reduced the volume by 40 pages, and this reviewer feels sure that in subsequent editions it will be further reduced in a manner to be more manageable and available for ready reference.

Here in one volume is incorporated all the fundamental information concerning food, dietetically, nutritionally, and biochemically, as well as its uses in the maintenance of sound health and as a therapeutic agent in the treatment of disease. Each topic is handled logically; nothing pertinent to the physician's understanding of the subject of nutrition in health and disease is omitted. The major part of the book, which deals with nutrition in disease, could be made more pertinent by the deletion of controversial subjects. The organization of the therapeutic regimen in outline form would be decidedly advantageous. All of the necessary information on the subject of diet in disease is contained in the volume, but the busy physician must take time to read the text in order to find the specific information he seeks. Since the volume is designed for the practitioner of medicine, many of the bibliographic references appended to each chapter might profitably be deleted. On the whole the book is excellent. It is the most practical reference book in the field. A copy should be readily available in the library of every physician.

* * *

CLINICAL ORTHOPTICS—DIAGNOSIS AND TREATMENT. By Mary Everist Kramer, Supervisor, The Orthoptic Department, The George Washington University Hospital, Washington, D. C. Edited by Ernest A. W. Sheppard, M.D., Professor of Ophthalmology, The George Washington University School of Medicine, Washington, D. C. and Louisa Well-Kramer, Certified Orthoptic Technician, Washington, D. C., 147 Illustrations. The C. V. Mosby Company, St. Louis, Mo., 1949. $8.00.

This is the first American book on orthoptics and fills a long-felt need for a text to be used in the training of orthoptic technicians.

The first 125 pages are taken up by a discussion of anatomy, embryology, the visual pathways and the physiology of the eye. While this may seem a good deal of space to devote to these subjects in a book of this type, it appears to the reviewer to be worthwhile and will in all probability make the subject more understandable to the orthoptic student.

The chapter on optics is brief, taking up the essential points in a clear fashion, thus avoiding the confusion that might arise from too detailed a discussion.

The subject of orthoptics is clearly discussed so that the student is able to understand it. The place of orthoptics in ophthalmology is clearly and fairly evaluated, no undue claims being made for the possibilities of the results that can be obtained with its use, especially in the squinting child. The illustrations, which were made for this book, are good, especially the line drawings.

At the end of each chapter is a list of questions which should prove useful to the student in determining whether or not he has obtained a proper understanding of the subject.

As is to be expected in a book of this type, there are some controversial statements, but on the whole there is little to criticize.

The book can be highly recommended and is the best available in the American literature. The format comes up to the usual high Mosby standards.

OPERATING ROOM TECHNIQUE. By Edythe Louise Alexander, R.N., Supervisor of the Operating Rooms of the Roosevelt Hospital, New York City. With 668 Illustrations. Second Edition. The C. V. Mosby Company, St. Louis, 1949. $10.00.

The book represents an excellent description of the preparation and uses of all materiel necessary for the conduct of successful surgical procedures. It will be of inestimable value to the surgical nurse, who will find all preparations and procedures clearly presented and illustrated. There is an outline of the essential steps of every operative procedure with which any surgical nurse must be familiar to be efficient. This book will be of great value to the surgeon, who too often loses interest in the technique of sterilization and preparation of materiel and its uses in the operating room.

This comprehensive work presents in a scholarly manner problems of nursing personnel, physical operating room setups, and maintenance of operating rooms. The details of sterilization, anesthesia, the position of the patient on the operating table, draping, et cetera, are effectively covered. Each operative procedure is described in outline form with illustrations of the salient features of the operation. Both nurse and surgeon will find information applicable to their needs.

The book is highly recommended and should be available for the operating room staff of every hospital.

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DEMENTIA PRAECOX—The Past Decade's Work and Present Status: A Review and Evaluation. By Leopold Bellak, M.D., Grune & Stratton, Inc., N. Y., 1947. $10.00.

In 1936, Nolan D. C. Lewis presented a summary and bibliography on dementia praecox entitled, "Research on Dementia Praecox (Past Attainments, Present Trends and Future Possibilities)," with the aid of a grant from the Scottish Rite Foundation. The present volume is a review of the work since then and includes the years from 1936 to 1946. About 3,200 papers have been abstracted and the material organized into various headings, much of it without critical evaluation, although the author has attempted some tentative hypotheses and formulations from the overwhelming mass of material presented.

There are chapters on definition and description; vital statistics; etiology, pathogenesis, and pathology; diagnosis and symptomatology; physiological studies; psychological studies; somatic therapy, including insulin treatment, metrazol treatment, electric shock treatment, and more rarely used somatic treatments such as nitrogen inhalation, oxygen inhalation, acetylcholine shock, fever treatment and prolonged narcosis; various kinds of endocrine treatments are mentioned. multiple transfusions, the use of antireticulocytotoxic serum, vitamins, and even refrigeration (hypothermia). Little space is devoted to prefrontal leukotomy, since so much of the work on this subject has been reported since 1946.

The author discusses the psychotherapy of dementia praecox as of directive, nondirective, or expressive (play therapies) varieties. It is of significance that in a volume comprising 456 pages, only six pages are devoted to psychotherapy, indicating how little has been written on this aspect of treatment of the schizophrenic as compared to almost 200 pages on various forms of somatic therapy. This is not to belittle, however, the therapeutic possibilities of adequate psychotherapy, but recognition that the psychiatric literature contains few reports so far.

The final chapter is devoted to the author's summary and conclusions. He emphasizes what he calls a "psychosomatic view of schizophrenia" in that etiological factors may vary at any point on a continuum from those hypothetically completely psychogenic to those hypothetically completely organic. The differentiation he makes between schizophrenia "where there is a minimum of somatic predisposition and a maximum of sociopsychological predisposition and, again, a minimum of somatic precipitating causes (except acute toxic conditions) and a maximum of psychological precipitating causes" and dementia praecox where there is "a maximum of somatic, constitutional predisposition and a minimum of sociopsychological predisposition or precipitating causes," is really splitting hairs and not consistent with the "psychosomatic view." To make such a differentiation on the basis of prognosis is to hark back to the days of Kraepelin.

Although the internist will not find this compilation of the literature on schizophrenia very pertinent to most of the problems he meets in everyday practice, it should prove an excellent source book for psychiatrists, especially those in institutional work.

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THE ANNUAL 1949. A Resume of Papers Presented at the Annual Meeting of the Western Branch, American Public Health Association, May, 1948—Western Branch American Public Health Association.

The program of the annual meeting of the Western Branch of the American Public Health Association was developed to study western public health problems. The papers have been condensed and edited with skill. The contents are of especial interest to public health workers in Chapter I, a Symposium on Child Health, Chapter II, Public Health Administration and Hospital Programs, and Chapter V, Public Health Hazards. Some of these papers, and especially those of Chapter III, Public Health Aspects of the Cancer Program, and Chapter IV, Infectious Diseases, are of real interest to all physicians. As examples, a succinct summary of Colorado tick fever by Lloyd Florio, who has finally solved most of its mysteries; the estimation of Stoenner and Jenkins that in Utah only one 26th of the incidence of human brucellosis is recognized; the observation of Jenkins that over half of those in Utah who were classed as having minimus diphtheria had previously been "immunized."

One is impressed by the caliber of the papers presented. Like our state medical association meeting, the quality is that of a national meeting.

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DISEASES OF THE EAR, NOSE AND THROAT. By Douglas G. Carruthers, M.B., Ch.M. (Sydney), Honorary Ear, Nose and Throat Surgeon, Sydney Hospital. Second Edition. The Williams and Wilkins Co., Baltimore, Md., 1948. $7.00.

This little book should serve a useful purpose. While presenting nothing striking, it is an up-to-date survey of the field, intended for medical students and general practitioners. It is sufficiently detailed to be useful in the care of patients, and yet does not go deeply into theory and the technical procedures which are the concern chiefly of specialists.

The author has visited the leading centers of otolaryngologic activity and has kept abreast of the international literature, so that the text does not suffer from the geographical isolation of his country (Australia). It is unfortunate that the printers turned the illustrations of the larynx on page 297 upside down. This could cause some confusion and throw doubt on the accuracy of other points, but no other significant errors were found.

California MEDICINE

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Chemosurgery in Cutaneous Malignancy

Frederic E. Mohs, M. D., *Madison, Wisconsin*

SUMMARY

Chemosurgical removal of accessible cancer under microscopic control affords:

1. *Unprecedented reliability. "Silent" extensions may be followed out and eradicated.*
2. *Conservatism in removal of tissue. With microscopic examination of each layer of tissue removed, it is possible to avoid removing more than one or two millimeters of healthy tissue beyond the extent of the cancer.*
3. *Good cosmetic results in many instances.*
4. *Relative freedom from operative pain.*
5. *Possibly, lower incidence of metastasis.*
6. *Low operative mortality.*

THE term "chemosurgery" was coined to designate a newly-developed method for the excision of cancer under complete microscopic control. The "chemo" part of the word implies that the tissues are chemically treated, while the "surgery" part indicates that the tissues are surgically excised, but it should be emphasized that these features are merely contributory to the most important feature, the microscopic control.

The idea of a microscopically controlled method of excision had its origin in 1932 in an incidental observation made with Professor M. F. Guyer during the course of experiments on the leukocytic reaction to irritants in cancerous and normal tissues. One of the injected irritants happened to be a 20 per cent solution of zinc chloride. This chemical killed the tissues and yet, upon microscopic study, the histologic structures were observed to be well preserved. What had happened was that the tissues had been fixed *in situ* the same as if they had been placed in a bottle of fixative solution. During the ensuing four years various details of the technique were worked out in the laboratory.[2]

Many different chemicals were tried as *in situ* fixatives. Some of them, such as the arsenic, mercury, and antimony salts, were found to be too toxic. Some, such as the caustic alkalies, caused excessive destruction of the tissues so that microscopic diagnosis was impaired. Other chemicals had other disadvantages. Zinc chloride proved to be the most favorable chemical tried because of the following advantages: (1) as used in the treatment of cancer it was essentially nontoxic systemically, (2) it penetrated the tissues readily and in a controllable manner, (3) it was safe to handle because it did not penetrate the intact skin, (4) it was nonodorous, and (5) healing of the tissues following its use was excellent. This chemical, it will be remembered, has long been used in the treatment of cancer both by ethical and unethical practitioners, but there was never any thought of microscopic control.

Various means of administration were tried in animal experimentation. Injection gave erratic penetration and it was found to be too dangerous in that many of the animals died immediately after injection. The application of solutions to the surface of the tumor resulted in poor and erratic penetration. The best means of administration proved to be the application of a paste which contained zinc chloride. The base mainly consisted of stibnite, an inert, finely granular material. This material held the solution of zinc chloride very loosely and allowed it to be released readily to the tissues. Moreover, the stibnite provided a highly permeable matrix, permitting the solution of zinc chloride to sink through the entire applied layer of paste. This in turn made it possible

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Presented before the Section on Dermatology and Syphilology at the 78th Annual Session of the California Medical Association, May 10, 1949, in Los Angeles.

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to vary the depth of penetration into the tissues by simply altering the depth of application of the fixative paste. By virtue of this feature, the depth of fixation could be accurately varied from a fraction of a millimeter to well over a centimeter in 24 hours.

Would chemical treatment of cancers have a tendency to increase metastasis? To answer this crucial query, 114 rats bearing Flexner-Jobling carcinomas were paired off into control and treated groups. The treated groups received repeated, small, subcurative intratumoral injections of zinc chloride every other day for a period of four to eight weeks. The incidence of metastasis was only 28 per cent in the injected rats while the incidence in the controls was 41 per cent. If anything, the treatment reduced rather than increased metastasis.

TECHNIQUE

The technique by which the microscopic control of excision was attained was partially worked out in animals and then perfected during the course of the treatment of about 2,500 patients in the past 13 years. The technique now used may be described with the aid of the accompanying diagram of a cutaneous cancer with three irregular extensions from the main mass (Figure 1).

In cancers covered by skin, the first step in the technique is the application of a keratolytic such as dichloracetic acid (Eastman) to render the surface keratin permeable to zinc chloride. The acid is applied until the skin turns white indicating penetration of the stratum corneum. If the lesion is large or in a sensitive area, it may be desirable to precede this application by the administration of an analgesic of a potency ranging from that of acetylsalicylic acid to that of morphine, and in some cases local anesthesia produced by the injection of 1 per cent procaine is desirable. The next step is the application of the zinc chloride paste which is composed of 40 grams of stibnite, 10 grams of sanguinaria canadensis and 34.5 cc. of a saturated solution of zinc chloride. This paste is applied in a depth calculated to penetrate through as much as possible of the grossly visible portion of the cancer. Analgesics are ordered to be given as necessary.

After a period of time, usually 24 hours, the layer of fixed tissue is excised with a scalpel. The incision is made through the fixed tissue just distal to the junction with the living tissue; therefore there is no pain or bleeding from the incision unless it is inadvertently carried too deep. Often, as in the example illustrated in Figure 1, it is possible grossly to visualize the cancer tissue at this stage as a white, crumbly material. When this is the case, the fixative paste is immediately reapplied after the removal of a specimen for microscopic diagnosis.

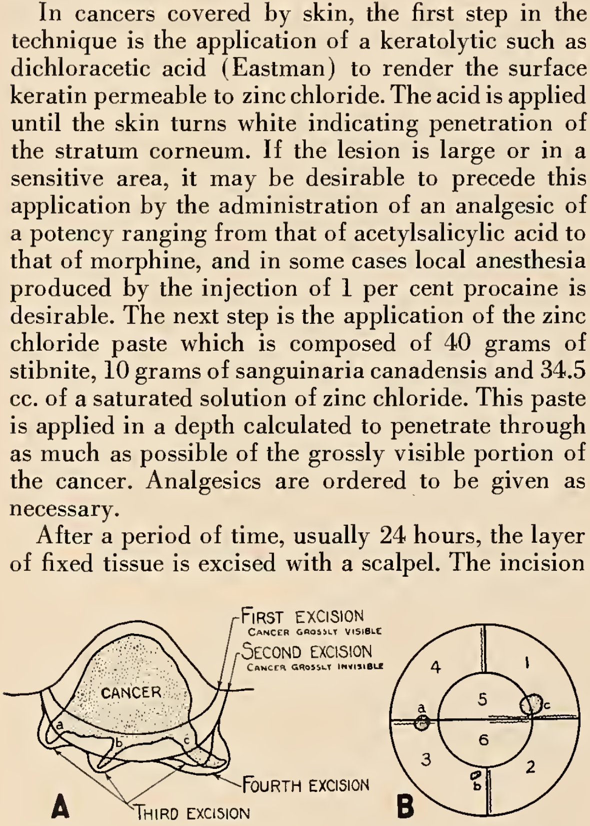

Figure 1.—A, diagram of a cancer with three slender extensions protruding from the main mass. The levels of the four incisions are indicated. B, map of the second excised layer showing the origin of each of the six specimens. Frozen sections were cut through the under surface of each specimen and the areas of cancer at a, b, and c, corresponding to the downgrowths a, b, and c in A were located by scanning the sections under the microscope. Reapplication of the fixative was limited to the cancerous areas. Two more excisions were required to eradicate the cancer.

After another period of 24 hours, another layer of fixed tissue may be excised. If the cancer tissue is not grossly visible at this level, the entire area under suspicion is subjected to systematic microscopic examination. This examination is accomplished as follows: After the careful removal of intact flat specimens, the origin of each of which is indicated by markings with merbromin on the lesion and by a map drawn on a pad of paper (Figure 1B), frozen sections are cut through the under surface of each of the specimens. Facilities for the rapid preparation of the special type of frozen section[3] are provided in the chemosurgery clinic so that, after a few minutes, the operator may scan the sections under the microscope, locate the areas of cancer, and mark them in red pencil on the map. Reapplication of the fixative paste is then limited to the areas found to contain cancer (areas a, b, and c in Figure 1B). The following day the tissues from these areas are excised and the procedure is repeated until a completely cancer-free plane is reached. In effect, this technique provides a means for the selective destruction of cancer because only one or two millimeters of healthy tissue beyond the extent of the cancer at any given point need be removed.

After an interval of from three to ten days, depending upon the location of the lesion, the final layer of fixed tissue separates spontaneously or may be removed by the cutting of the holding strands. The resultant granulation tissue is exceptionally healthy, well vascularized, and germ-resistant. It supports the very rapid epithelization of the wound with consequent soft, smooth, pliable scars which are surprisingly good from a cosmetic standpoint.

INDICATIONS

The microscopic control of excision afforded by the chemosurgical method is useful in the treatment of most accessible forms of cancer.[4] Articles have been published concerning the chemosurgical treatment of cancer of specific sites such as the lip,[5] nose,[6] ear,[7] eyelids,[8] face,[9] extremities and trunk,[10] skin,[11] and parotid gland.[12] In addition, the technique is of value in the treatment of cancer of the mouth, nasal cavity, larynx, vulva, vagina, penis, anus and lower rectum. A few remarks concerning the treatment of some specific forms of cancer follow:

Cancer of the nose. Microscopic control of excision is particularly advantageous in the treatment of nasal lesions because it is difficult to estimate accurately the extent of cancer in this structure by clinical examination alone. The reasons for this poor accuracy are twofold: First, cancer tissue has about the same consistency as the fibrocartilaginous tissue of the nose, making it difficult to differentiate one from the other by palpation. Second, cancer often extends in a surprisingly irregular and unpredictable manner through the various tissues of the nose; this tendency is particularly striking in the tissues of the nasolabial fold (Figure 2), the root of the nose near the inner canthi and the septum. Under the full microscopic control afforded by the chemosurgical method the "silent" extensions may be accurately followed out and eradicated. Lesions which might be radioresistant due to invasion of cartilage or bone or for other reasons are especially suited to chemosurgical treatment, as are neoplasms which are too extensive for ordinary surgical excision.

Cancer of the ear. With the chemosurgical technique, neoplasms of the pinna (Figure 3) and of the external auditory canal may be removed with great assurance of complete eradication and yet with minimal destruction of normal tissue. The conservatism is especially important in aural lesions because the reconstruction of large defects of the ear is often unsatisfactory from a cosmetic standpoint.

Except in very early lesions the carcinoma almost invariably extends to the perichondrium and therefore the usual technique is to excise chemosurgically the grossly visible portion of the neoplasm down to the cartilage and then to section the periphery until a cancer-free level is reached at all points. The portions of the cartilage acted upon by the fixative are excised unless the area is small, in which case granulation tissue may close over the fixed cartilage and allow epithelization to take place.

Cancer of the eyelids. Unless there is actual invasion of the eyeball, it is possible to remove almost any cancer of the eyelids without danger of damage to the

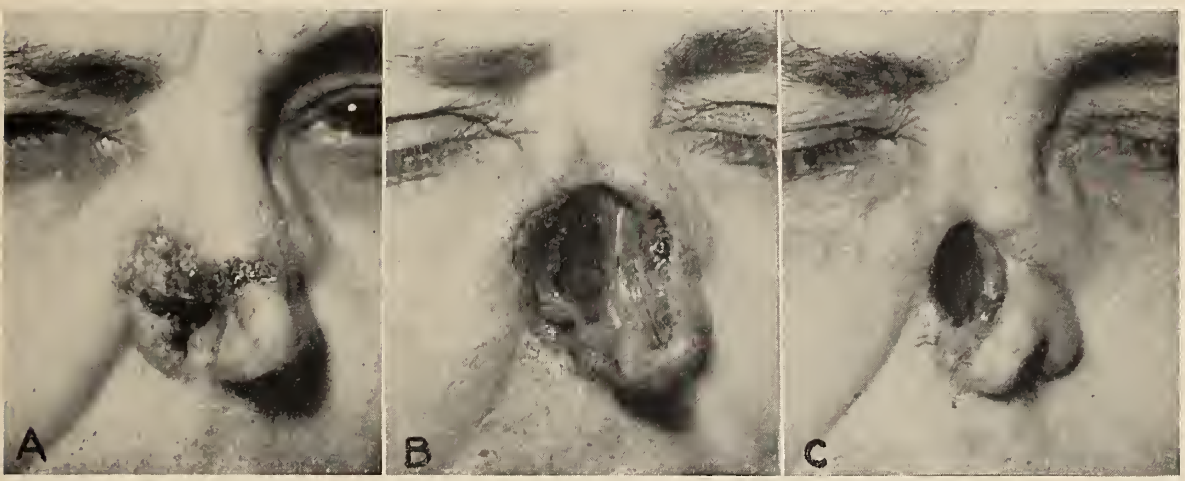

Figure 2.—A, basal cell carcinoma. This highly invasive neoplasm was excised in eight microscopically controlled stages by the chemosurgical technique. It extended considerably farther in some directions than was indicated by the initial examination. B, the granulation tissue after separation of the final layer of fixed tissue. C, healed lesion before the plastic repair. The patient was free of cancer after eight years.

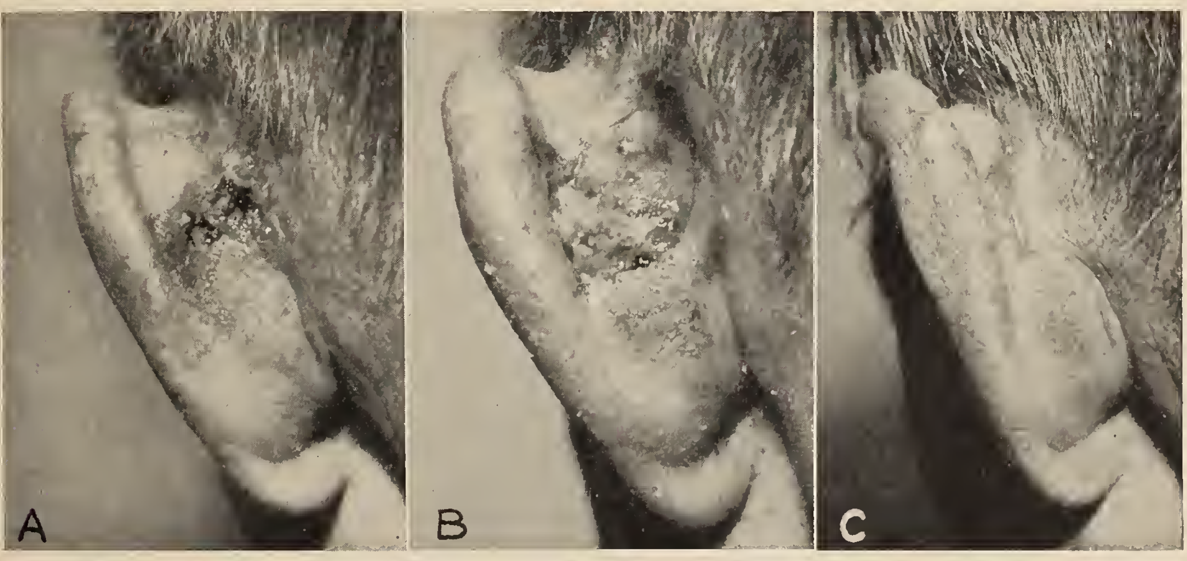

Figure 3.—A, squamous cell carcinoma which had recurred after electrodessication on two occasions. Chemosurgical excision was accomplished in four microscopically controlled stages. B, granulation tissue after separation of the final layer of fixed tissue. C, healed lesion. There was no evidence of cancer after two and one-half years.

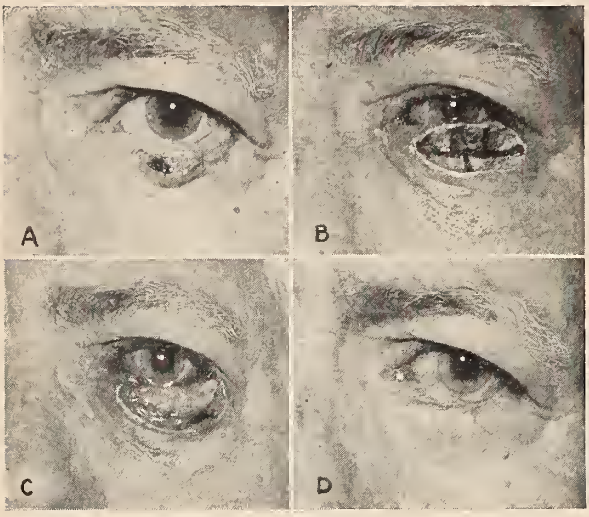

Figure 4.—A, basal cell carcinoma, recurrent after electrodessication. B, lesion two days later. The markings on the fixed tissue indicate the origin of the five specimens. Frozen sections revealed the presence of carcinoma in two areas in the center of the lesion. These areas were free of cancer on the next day. C, granulation tissue four days after the last application of fixative. D, healed lesion. There was no evidence of cancer after one and one-half years.

eye. The chemosis and the edema of the eyelids (Figure 4B) due to the chemical inflammation produced by the fixative are protective because they tend to push the treated area away from the eyeball. Another safety factor is the flow of tears which carries away the fixative chemical as it slowly permeates through the eyelid. The cosmetic results are often surprisingly good (Figure 4D), and even if the cancer extends for a considerable distance into the orbit it usually is possible to preserve a functional eye.

Cancer of the face. The chemosurgical treatment of cancer in areas of the face other than the nose, ears, and eyelids has been described.[9] Often it is feasible to remove extensive recurrent lesions without appreciable disfigurement.

Cancer of the extremities. By means of the microscopically controlled chemosurgical technique, it is often possible to be more conservative than would be feasible with the usual surgical techniques. This conservatism is of particular concern when the involved structure is as economically important as the hand. Radiation carcinomas on the hands of physicians and dentists have proven to be especially responsive to chemosurgical treatment.

Cancer of the lip. Squamous cell carcinoma of the lower lip may be effectively and conservatively treated by the chemosurgical technique. The cosmetic results are excellent. As with squamous cell carcinoma in other sites, it is essential to examine carefully for metastatic regional nodes. If enlarged nodes are present a surgical neck dissection is indicated. If no enlarged nodes are found but the primary lesion is large and the grade of malignancy is relatively high, it may be advisable to recommend a prophylactic neck dissection. In any event, observation for a period of five years is indicated.

Melanoma. Since melanoma frequently spreads into the lymphatic vessels adjacent to the primary lesion, it is essential to remove an area of tissue well beyond the microscopically determined extent of the primary melanomatous mass. The amount of tissue removed depends upon the size and degree of malignancy of the primary melanoma. Surgical dissection of enlarged regional nodes is indicated when operable. Prophylactic dissection of nodes in the absence of enlargement may be advisable in some cases. Very close postoperative observation is essential.

DISCUSSION

The microscopic control of excision makes possible the unprecedented reliability and also the conservatism of the chemosurgical treatment of cancer. The main reason for the need of microscopic control is the frequent presence of small-caliber, clinically undetectable outgrowths from the main mass of cancer.

That the method is capable of results which compare favorably with the best results obtained with other methods is indicated by the accompanying statistics (Table 1). It is to be remembered that the present series includes many extensive and recurrent cancers; in fact, a number would be considered inoperable as far as ordinary surgical techniques are concerned.

TABLE 1.—*Rate of Cure of Cancer of the Skin at Three Years*

	Per Cent
Present series,[11] 814 cases	93.6
Magnussen,[1] Radiumhemmet	88.0
Poppe,[14] Norwegian Radium Hospital	80.8

The conservatism is obvious when it is considered that only one or two millimeters of tissue beyond the actual extent of the cancer at any point need be removed.

In addition to the advantages of reliability and conservatism, there is also the advantage of a very low operative mortality rate. In a recently published series of 814 cases of cancer of the skin,[11] there was only one operative death. This death occurred in a patient with extensive cancerous invasion of the frontal lobe of the brain.

Disadvantageous features of the method include, first, the necessity for special training and constant practice in the use of the technique for optimum results and, second, the necessity of having special facilities and technical assistants for the preparation of the unusual type of frozen sections. In addition, the chemosurgical treatment of extensive cancers may be time-consuming and tedious work for the operator and a painful experience for the patient, but inasmuch as these lesions would otherwise carry a very poor prognosis, these disadvantages seem relatively inconsequential.

In addition to the wide variety of accessible neoplasms amenable to chemosurgical treatment there also are other lesions, for example those of gangrene,[13] for which the technique is useful. Thus, there is a sufficiently wide field of usefulness to justify the establishment of chemosurgery clinics at strategic points throughout the country.

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Public Health Aspects of Lymphogranuloma Venereum

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SUMMARY

The clinical symptoms of lymphogranuloma venereum with the serious pathologic changes often occurring in the late stages of the disease warrant greater attention to the disease.

The reported ratio of cases of lymphogranuloma venereum to cases of syphilis and gonorrhea is much higher in San Francisco than in other metropolitan ports of western United States, apparently because of greater use of diagnostic tests for the disease.

Tests of persons likely to be exposed and other persons not likely to be exposed to venereal diseases indicate that a positive reaction to a Frei test implies past or present infection with lymphogranuloma venereum.

Positive reactions to complement fixation tests are notably more frequent than positive response to Frei tests. The complement fixation test appears to be an unreliable diagnostic aid.

The frequency of positive reactions associated with other venereal diseases, and their infrequency otherwise, suggests that lymphogranuloma venereum may exist, unrecognized, in many persons, who may be, potentially at least, carriers of the disease.

LYMPHOGRANULOMA venereum is a relatively widespread disease which is frequently unrecognized by private physicians and public health workers. Either symptoms are not suspected or they are not readily demonstrable so that only a Frei test or a complement fixation test reveals infection. (See Table 4.

The initial lesion is a small herpetiform vesicle or ulcer with clean edges and a whitish gray base, circular or lenticular in shape, sometimes multiple, usually inconspicuous, frequently transitory, and commonly unobserved by the patient. It generally occurs on the genitalia of either sex, usually is painless, heals spontaneously, and leaves no scarring. This primary lesion is not accompanied by subjective symptoms, and generally disappears within two weeks. Thus it is usually not demonstrated.[10,16] It may or may not be followed by enlargement of the regional lymph nodes.[24] Chronic enlargement of the nodes may not be evident in the female due to the drainage of the posterior two-thirds of the genitalia to the perirectal lymph nodes; this drainage is responsible for the frequent occurrence of rectal stricture in the female.[20]

If inguinal lymphadenopathy occurs, the earliest symptoms may be stiffness or aching in the groin during walking; later, nodes may become palpable and visibly enlarged. Following discrete enlargement of the inguinal lymph nodes, which are at first movable under the skin, the nodes become adherent, forming a single, inflamed mass.[25] This may be confused with tuberculosis involvement, Hodgkin's disease, lymphatic leukemia, bacterial infection, tularemia, or even with a hernia. If the disease is not adequately and promptly treated, the lymph nodes in the majority of cases will suppurate. There are many foci of suppuration. If this suppuration takes place in the perianal or deep pelvic lymphatic nodes of the female, it can result in pelvic inflammatory infection resembling that due to gonococci, possibly later requiring surgical intervention because of contraction of scar tissue. Elephantiasis in the genital area may follow local lymphatic obstruction due to an inflammatory exudate, or to cicatricial contraction occurring either in local areas or in the regional lymph nodes, or in both.[15] Fortunately, sulfonamides are effective in the treatment of both these conditions.

The most serious established complication of lymphogranuloma venereum is the involvement of the anorectal region. It has been shown that most males having anorectal complications have been directly infected with the causal agent in the anal or rectal mucosa through the practice of sodomy.[8,11] However, adults and children of either sex may acquire this type of infection from a contaminated enema tip.[10] The mucosa of the lower portion of the bowel apparently provides an excellent medium for the growth of the virus.[17]

In the female, as previously indicated, it appears that, except for sodomy, rectal involvement usually is the result of a direct extension of the virus by way of the lymphatic vessels from the genitalia to the rectum.

Rectal forms of the disease have been classified as stricture with proctitis, stricture without proctitis, and proctitis without stricture.[10] The earliest clinical symptom of proctitis is a small amount of rectal bleeding accompanied by a small amount of pus.[20] Patients usually do not complain of discomfort until the stricture has developed. At this stage the granulation tissue is replaced by fibrous tissue. The restriction of the fecal passage results in abdominal cramps.

Infection, such as accidental infection in laboratory workers,[12] may occur on external sites. Meningeal[22] and ocular infections[3] have been reported, but these are rare.

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Although worldwide in distribution, the disease apparently was not recognized in this country until after 1920.[21]

The disease was first described by Hunter in 1786 in his description of "buboes which arose without visible cause and were unaffected by mercury."[14] William Wallace in 1833[26] and others also gave early descriptions. Durand, Nicholas, and Favre[5] fully described and interpreted the disease in 1913, naming it "subacute inguinal granulomatosis." Frei in 1925[7] described the intradermal test which bears his name.

Hellerström and Wassen[13] in 1930 found the causal agent of the disease to be a virus. Levaditi further established the role of the virus in 1932.[18]

McKee, Rake and Shaffer described a complement fixation test for the disease in 1940.[19] With these aids, a relatively high incidence of the disease has been demonstrated.[2, 16]

The virus has been isolated from apparently healthy vaginal, uterine, and urethral tissue of prostitutes with a known high rate of exposure to venereal disease. The virus has been recovered in man 21 years after infection.[20]

It is incumbent upon physicians to be continuously conscious of the early clinical symptoms of the disease, for early diagnosis is essential if serious pathologic consequences are to be avoided.

OBSERVATIONS IN THE SAN FRANCISCO AREA

In San Francisco, between April, 1943, and December, 1947, Frei tests and complement fixation tests for lymphogranuloma venereum were done routinely on all patients examined at the Women's Jail Clinic and on all patients who had general symptoms referable to venereal diseases at the San Francisco City Clinic.

This procedure has led to the discovery of a notably greater number of infections in San Francisco than has been reported in other metropolitan seaports of the western United States. The ratios of the different venereal diseases to one another should be fairly constant in each of these cities. However, Table 1 shows this not to be true so far as reported cases are concerned. For the eight-year period, 1940-1947, the ratio of gonorrhea to syphilis was fairly constant for all cities. The ratios of syphilis to lymphogranuloma venereum and of gonorrhea to lymphogranuloma venereum, however, varied conspicuously from city to city. That the ratio for San Francisco was significantly lower than that for any other city implies that more cases of lymphogranuloma venereum in proportion to cases of syphilis and gonorrhea were reported in San Francisco than in other metropolitan seaports on the Pacific Coast.

TABLE 1.—*Ratio of Syphilis to Lymphogranuloma Venereum, Ratio of Gonorrhea to Lymphogranuloma Venereum, and Ratio of Gonorrhea to Syphilis, of Cases Reported by Civilian Agencies, Pacific Coast Port Cities, 1940-1947*

Year	Los Angeles	Oakland	San Diego	San Francisco	California	Portland	Seattle
RATIO OF SYPHILIS (ALL STAGES) TO LYMPHOGRANULOMA VENEREUM							
1940	227:1	283:1	253:1	94:1	303:1	*	139:1
1941	179:1	50:1	262:1	39:1	159:1	*	69:1
1942	175:1	76:1	92:1	23:1	114:1	*	249:1
1943	246:1	89:1	378:1	31:1	100:1	386:1	*
1944	122:1	194:1	*	29:1	82:1	959:1	353:1
1945	82:1	341:1	1188:1	33:1	109:1	*	177:1
1946	134:1	166:1	1273:1	22:1	101:1	311:1	132:1
1947	110:1	172:1	734:1	27:1	102:1	*	166:1
8-year total	139:1	135:1	364:1	30:1	120:1	1583:1	172:1
RATIO OF GONORRHEA TO LYMPHOGRANULOMA VENEREUM							
1940	174:1	248:1	517:1	100:1	273:1	*	178:1
1941	127:1	41:1	327:1	30:1	134:1	*	87:1
1942	99:1	55:1	71:1	16:1	90:1	*	229:1
1943	104:1	52:1	234:1	22:1	91:1	394:1	*
1944	72:1	149:1	*	28:1	118:1	1541:1	466:1
1945	70:1	361:1	1154:1	47:1	112:1	*	296:1
1946	166:1	276:1	930:1	39:1	140:1	782:1	319:1
1947	155:1	340:1	1191:1	44:1	152:1	*	442:1
8-year total	111:1	148:1	377:1	35:1	120:1	1991:1	253:1
RATIO OF GONORRHEA TO SYPHILIS							
1940	0.8:1	0.9:1	2.0:1	1.1:1	0.9:1	0.9:1	1.3:1
1941	0.7:1	0.8:1	1.2:1	0.8:1	0.8:1	0.7:1	1.3:1
1942	0.6:1	0.7:1	0.8:1	0.7:1	0.8:1	0.7:1	0.9:1
1943	0.4:1	0.6:1	0.6:1	0.7:1	0.9:1	1.0:1	1.2:1
1944	0.6:1	0.8:1	1.1:1	1.0:1	0.8:1	1.6:1	1.3:1
1945	0.8:1	1.1:1	1.0:1	1.4:1	1.0:1	2.3:1	1.7:1
1946	1.3:1	1.7:1	0.7:1	1.7:1	1.4:1	2.5:1	2.4:1
1947	1.4:1	2.0:1	1.6:1	1.6:1	1.5:1	1.7:1	2.7:1
8-year total	0.8:1	1.1:1	1.0:1	1.1:1	1.0:1	1.3:1	1.5:1

* No cases of lymphogranuloma venereum reported.

Table 2 shows the number of cases of syphilis, gonorrhea, and lymphogranuloma venereum reported by California ports as compared with total state morbidity reports for these diseases. San Francisco reported 11 per cent of the syphilis and 13 per cent of the gonorrhea cases in the state during the 1940-1947 period and 44 per cent of the lymphogranuloma venereum cases. This percentage of lymphogranuloma venereum is three and a half to four times the expectancy, which would also be approximately 12 per cent. The disproportionate figures for lymphogranuloma venereum must be due to differences in methods of search. In the San Francisco Department of Public Health the diagnosis of lymphogranuloma venereum is based on a strongly positive Frei test. It is believed that many asymptomatic cases, and possibly carriers, are discovered through this routine testing. Only occasionally were clinical symptoms of the disease discovered on careful examination of patients whose intradermal tests were positive. So far as is known, in most other cities on the Pacific Coast diagnosis is based entirely upon clinical evidence.

The authors believe that the practice of diagnosing lymphogranuloma venereum on clinical symptoms alone is no more justifiable than basing a diagnosis of all cases of syphilis entirely upon the clinical manifestations of early and late syphilis. Just as a latent period is recognized in syphilis, so also, latency should be recognized in lymphogranuloma venereum. a latency likely to be followed by late clinical disease such as rectal stricture. The existence of hidden foci of infection during the period of latency has been postulated by Blair.[1]

The authors believe that patients who have a positive reaction to a Frei test or who have significant titres by the complement fixation test may be carriers of the disease. Thus it is important from a public health point of view to locate them and to effect a cure of the carrier state. This puts a heavy responsibility on both the meaning and reliability of each of these diagnostic aids. An evaluation of these tests calls for demonstration of the degree to which they are consistent or reliable. It calls also for evidence that the tests really measure infection specifically and accurately.

Evidence to be presented suggests that the Frei test is probably at least as specific a test for lymphogranuloma venereum as the serologic test for syphilis is for that disease. Neither test is entirely specific.

Evaluation of the specificity of the Frei test is based upon experience during 1943 and 1944, when 325 Frei tests were done on groups of persons with a low expected venereal disease exposure rate. Persons in the following groups were tested: bacteriology stu-

TABLE 2.—*Venereal Disease Cases Reported by Civilian Agencies from Selected Port Cities in California as Compared to State Reports, 1940-1947*

	Los Angeles		Oakland		San Diego		San Francisco		
Year	No.	% of State Total	No.	% of State Total	No.	% of State Total	No.	% of State Total	California
SYPHILIS—ALL STAGES									
1940	6,813	31.3	849	3.9	506	2.3	2,450	11.2	21,785
1941	6,970	31.1	743	3.3	786	3.5	2,213	9.9	22,405
1942	6,820	27.5	994	4.0	917	3.7	2,758	11.1	24.805
1943	11,083	33.6	1,691	5.1	1,135	3.4	3,127	9.5	32,994
1944	10,884	40.4	1,939	7.2	1,106	4.1	2,868	10.6	26,961
1945	9,609	35.8	2,044	7.6	1.188	4.4	3,351	12.5	26.833
1946	8,553	35.3	1,657	6.8	1.273	5.3	3,092	12.8	24,221
1947	7,690	35.3	1,548	7.1	734	3.4	2,709	12.4	21,766
Total	68,422	33.9	11,465	5.7	7,645	3.8	22.568	11.2	201,770
GONORRHEA									
1940	5,223	26.6	743	3.8	1,033	5.3	2,592	13.2	19,639
1941	4,967	26.3	613	3.2	981	5.2	1,700	9.0	18,871
1942	3,878	19.7	717	3.6	712	3.6	1,933	9.8	19,682
1943	4,667	15.6	994	3.3	703	2.4	2,251	7.5	29,912
1944	6,397	31.4	1,491	7.3	1,223	6.0	2,748	13.5	20,365
1945	8,134	29.4	2,167	7.8	1.154	4.2	4,750	17.2	27,668
1946	10,632	31.9	2,764	8.3	930	2.8	5,377	16.1	33,364
1947	10,859	33.6	3,056	9.4	1,191	3.7	4,363	13.5	32,396
Total	54,757	27.1	12,545	6.2	7.927	3.9	25.614	12.7	201,897
LYMPHOGRANULOMA VENEREUM—ALL STAGES									
1940	30	41.7	3	4.2	2	2.8	26	36.1	72
1941	39	27.7	15	10.6	3	2.1	57	40.4	141
1942	39	17.9	13	6.0	10	4.6	120	55.0	218
1943	45	13.6	19	5.8	3	1.0	101	30.6	330
1944	89	39.0	10	4.4	0	0	98	43.0	228
1945	117	47.6	6	2.4	1	0.4	101	41.1	246
1946	64	26.8	10	4.2	1	0.4	138	57.7	239
1947	70	32.9	9	4.2	1	0.5	99	46.5	213
Total	493	29.2	85	5.0	21	1.2	740	43.9	1,687

dents at the University of California, Berkeley campus; bacteriology students at the San Francisco State College; student nurses at the San Francisco Mary's Help Hospital; and the professional staff of the division of venereal diseases of the City and County of San Francisco Department of Public Health. Only in one instance (0.3 per cent) was there positive reaction to a Frei test. Gelperin,[9] testing healthy U. S. Army personnel, found a much higher incidence of positive reactions to Frei tests in Negro troops than in white troops, the ratio being 16:1. The authors' findings and those of Gelperin indicate a low incidence of positive reactions in groups with a low expected venereal disease exposure rate, in contrast to a relatively high incidence in groups with a high expected venereal disease rate.

The work of Dulaney and Packer[4] indicates that the complement fixation test is not as specific as the Frei test. Testing 148 medical students with no clinical evidence of venereal disease, they found 13 students with positive reaction to complement fixation tests (8.8 per cent) at dilutions of 1:5, 1:10, or 1:20. This contrasts with the authors' findings of 0.3 per cent positive reactions to Frei tests in a similar group.

An important consideration is the relative efficiency of the Frei test as compared with the complement fixation test. The cost of performing the Frei test is regarded by some as several times that of the complement fixation test. Furthermore, the Frei test demands the return of the patient within 48 to 72 hours after the injection. Since many patients do not return within this period, an appreciable number of Frei tests are wasted. On the other hand, reports are made on virtually all specimens submitted for complement fixation test.

In these circumstances it is essential to know how the complement fixation test compares with the Frei test in detecting clinically unrecognizable cases. Statistical reliability of the Frei test was demonstrated by a survey of 325 persons with a low expected rate of exposure to venereal disease.

Table 3 shows the number of Frei tests and complement fixation tests performed on selected patients at the San Francisco City Clinic and the Women's Jail Clinic. The data on positive reactions to Frei tests and positive reactions to complement fixation tests do not agree well. Of 9,188 patients on whom both tests were performed, 1,407 (15 per cent) had a positive reaction to intradermal tests, or to complement fixation tests or to both. Of these, only 89 patients (6 per cent) with positive reaction to one of the tests had positive reaction to both tests. In 931 patients (67 per cent), the Frei test was negative while the complement fixation test was positive. In 201 patients (14 per cent), the Frei test was positive while the complement fixation test was negative. The remaining 186 patients (13 per cent) had a positive Frei test with a weakly positive, doubtful, nonspecific, or anti-complementary complement fixation test, or a doubtful Frei test with a positive complement fixation test. Of 430 patients with a positive Frei test only 89 (21 per cent) had a positive complement fixation test.

Table 4 presents an analysis of those patients at the City Clinic and the Women's Jail Clinic with positive reactions to one or both tests who also gave a history of having had symptoms that might be attributable to lymphogranuloma venereum or had present symptoms. Of 1,407 patients with positive tests, 180 (13 per cent) revealed or had indicated such symptoms. More than half of these patients had a negative reaction to the Frei test and a positive response to the complement fixation test. This may indicate that the symptoms did not constitute a reliable index of infection, or that the Frei test and complement fixation test do not cover the same stages of infection. Perhaps, for instance, the Frei test misses the early stages.

Table 5 shows that 306 patients were diagnosed with or without clinical symptoms as having lymphogranuloma venereum at the City Clinic during the period of the survey. Only 120 (39 per cent) were found to have lymphogranuloma venereum alone. The remaining 186 (61 per cent) of those diagnosed as having lymphogranuloma venereum also had one or more of the other venereal diseases. In the group of patients with positive reaction to a complement fixation test and negative response to a Frei test, only 17 (4 per cent) were clinically diagnosed as having lymphogranuloma venereum.

Table 6 shows that out of 784 patients at the City Clinic who had positive reaction to either or both tests, 683 (87 per cent) either had a history of some previous venereal disease or were currently diseased. Only 101 (13 per cent) had neither history of previous venereal infection nor venereal disease at the time of examination.

TABLE 3.—*Comparison of Results of Frei Test and Complement Fixation Test for Lymphogranuloma Venereum on 9,188 Patients of San Francisco City Clinic and Women's Jail Clinic, 1943-1947*

	Complement Fixation Test Result													
	Positive		Weakly Positive		Doubtful		Negative		Non-Specific		Anti-Comp.		Total	
Frei Test Result	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Positive	89	1.0	80	0.9	48	0.5	201	2.2	8	0.1	4	—	430	4.7
Doubtful	46	0.5	46	0.5	38	0.4	140	1.5	1	—	2	—	273	3.0
Negative	931	10.1	1,168	12.7	924	10.1	5,291	57.7	124	1.3	47	0.5	8,485	92.3
Total	1,066	11.6	1,294	14.1	1,010	11.0	5,632	61.3	133	1.4	53	0.6	9,188	100.0

In the above table, fractions less than one-tenth of 1 per cent are not shown, although they were taken into account in totalling the columns.

TABLE 4.—*Symptoms Attributable to Lymphogranuloma Venereum Found in Patients with Positive Frei and/or Complement Fixation Test, San Francisco City Clinic and Women's Jail Clinic, 1943-1947*

Test Result			Symptoms							
Frei	Complement Fixation	Number of Symptoms Per Patient	Pelvic Pain	Inguinal Lymphadenopathy	Rectal Stricture	Elephantiasis of Genitalia	Urethral Discharge Not Attributable to Gonorrhea	Inguinal Region Shotty	Total Cases with Symptoms	No Symptoms
Pos.	Pos.	1	1	9	2	....	....	....	12	75
		2	2	2	....	....	....	....	2	
Pos.	Wk. Pos.	1	3	8	1	....	1	....	13	66
		3	1	1	....	....	1	....	1	
Pos.	Dbt.	1	4	3	....	....	1	....	8	39
		2	1	1	....	....	....	....	1	
Pos.	Neg.	1	4	22	1	....	3	2	32	167
		2	1	2	1	....	....	....	2	
Dbt.	Pos.	1	3	3	....	....	....	....	6	39
		2	1	1	....	....	....	....	1	
Neg.	Pos.	1	31	50	1	3	1	3	89	833
		2	5	6	1	1	1	....	7	
		3	2	1	2	1	....	....	2	
Pos.	Non-Spec.	1	2	....	1	....	....	....	3	5
Pos.	Anti-Comp.	1	....	....	1	....	....	....	1	3
Totals:		1	48	95	7	3	6	5	164	1,227
		2	10	12	2	1	1	....	13	
		3	3	2	2	1	1	....	3	
			61	109	11	5	8	5	180	
Per cent of Symptomatic Cases			34	61	6	3	4	3		

Total Cases.............................. 1,407

Total Symptomatic Cases........................ 180
Per cent Symptomatic Cases.................. 13

Total Asymptomatic Cases..................... 1,227
Per cent Asymptomatic Cases................ 87

TABLE 5.—*Diagnosis Following Examination of Patients with Positive Frei and/or Complement Fixation Test, San Francisco City Clinic, 1943-1947*

Test Result		DIAGNOSIS																	
Frei	Comp. Fix.	Lymphogranuloma Venereum (LGV)	LGV and Syphilis	LGV and Gonorrhea	LGV and Chancroid	LGV, Syphilis and Gonorrhea	LGV, Syphilis and Chancroid	LGV, Gonorrhea and Chancroid	Syphilis	Gonorrhea	Chancroid	Syphilis and Gonorrhea	Gc, Prior Treatment for LGV	No Venereal Disease (VD), Prior Treatment for LGV	No VD, Prior Treatment for VD Other than LGV	No Diagnosis, Prior Treatment for VD Other than LGV	No Diagnosis	No VD, No Prior History of VD	Total
Positive	Positive	16	5	30	3	..	..	..	1	10	..	1	..	..	..	..	..	..	66
Positive	Wk. Pos.	25	2	23	2	3	1	..	..	12	..	..	..	..	1	..	..	..	69
Positive	Doubtful	15	1	16	..	2	..	1	..	5	..	1	..	..	..	..	1	..	42
Positive	Negative	44	4	73	6	5	1	..	2	17	3	1	..	..	1	5	2	..	169
Doubtful	Positive	2	..	3	..	..	..	..	1	6	..	..	..	..	2	..	1	4	19
Negative	Positive	14	..	3	..	..	..	..	17	221	6	11	1	4	40	6	7	87	412
Positive	Non-Specific	3	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	6
Positive	Anti-Comp.	1	..	...	..	..	..	..	..	...	..	..	..	..	..	..	..	..	1
Total		120	12	150	11	10	2	1	21	272	9	14	1	4	44	11	11	91	784

Total Lymphogranuloma Venereum.. 306

COMMENT

The reaction to complement fixation test was positive in a much greater number of cases than was reaction to the Frei test. Thus it might appear to be a satisfactory exclusion test. If the complement fixation test is to be judged a satisfactory exclusion test, it ought to give a positive reading whenever the Frei test reaction is positive. As previously indicated, it was found that in 14 per cent of the patients having positive reaction to one or both tests, the Frei test reaction was positive while reaction to the complement fixation test was negative, and in 67 per cent the order was reversed. It appears, therefore, that neither the complement fixation test nor the Frei test is a satisfactory exclusion test. The authors believe the Frei test to be more specific than the complement fixation test and thus a better diagnostic aid.

For the Frei test the authors use an antigen (Lygranum ®) prepared from yolk sacs harvested from chicken embryos moribund or recently dead from infection with the virus of lymphogranuloma venereum and purified by selective centrifugation. In patients having a reaction, an area of induration develops in from 24 to 72 hours.

In principle, the reaction of the Frei test is presumed to be due to the development of hypersensitivity from prolonged exposure to the virus, a sensitizing process which occurs in many infections of sufficient chronicity. More precisely, the reaction is a delayed inflammation resulting from the injection of a substance which, in the skin of unsensitized persons, is innocuous. The test is not to be classed arbitrarily with serologic (antigen-antibody) reactions, from which it probably varies in major respects. Sensitivity develops more slowly with the Frei test than do antibodies which permit fixation of complement; in most cases sensitivity lasts longer. The sensitized state may be subject to less fluctuation than the titre of complement fixing antibodies. It must be noted, however, that response is not the same in all persons. Some infected persons unquestionably are sensitized more readily than others, and some may never be sensitized. By the same token, the formation of antibodies in response to antigenic stimuli is notoriously variable in different persons and may be inconstant in any one person.

In considering the reliability of the complement fixation test, attention should be directed to the delicacy of the reaction. The technique is similar to that of the Kolmer complement fixation test, the main difference being that the total volume of fluid used is very much smaller, being 1.1 ml. Thus, the volume of each of the five constituent parts is extremely small. As a result of this, the titrating of the hemolytic agent must be done with great care, and any small amount of inaccuracy in calibration leads to a high percentage of error in the final result. Control checks against normal egg extracts must at all times be set up with each serum to rule out any non-specific reactions. It is thus a delicate test and liable to error unless conducted under the most exacting conditions. This possibility of error appears to diminish its over-all validity.

Opinions differ regarding the specificity of the two tests, except that there is general agreement that neither is strictly specific. Only a practical or statistical specificity can be claimed. Cross reactions in persons with present or past infections due to viruses with similar sensitizing or antigenic components are possible. Patients with "atypical" pneumonia, trachoma, psittacosis and related virus infections may also react to one or both of these tests. Accumulating epidemiological data concerning all members of the group of diseases suggest that, despite an acknowledged lack of specificity (a lack which deserves full recognition in the interpretation of the results of tests) the number of present or past cases of infection other than lymphogranuloma venereum is not great enough seriously to interfere with the value of the tests in groups of persons having a high venereal disease exposure rate.

A source of potential error may lie in the assumption that reacting patients have current cases for which treatment is indicated. There is no means at present for learning precisely what percentage of reactors have cured or arrested cases. The authors justify the procedure of diagnosing lymphogranuloma venereum on the basis of reaction to a Frei test in the absence of clinical symptoms, perhaps too broadly, on the assumption that most reactors at the present time, at least, have been treated inadvertently, if at all, and that the chronicity of the disease and potential late and serious sequelae justify

Table 6.—*Venereal Disease History of Patients with Positive Frei and/or Complement Fixation Test, San Francisco City Clinic, 1943-1947*

Test Result		Prior History of VD,* No VD at Time of Exam.	Prior History of VD & VD at Time of Examination	VD at Time of Exam.—No Prior History of VD	Prior Hist. of VD—No Diag. at Time of Exam.	No VD at Time of Exam.—No Prior History of VD	No Diag.—No Prior History of VD	Total
Frei	Comp. Fix.							
Positive	Positive	....	40	26	....	....	....	66
Positive	Wk. Pos.	1	40	28	....	....	....	69
Positive	Doubtful	....	22	19	1	....	....	42
Positive	Negative	5	97	60	5	....	2	169
Doubtful	Positive	2	4	8	....	4	1	19
Negative	Positive	40	102	170	6	87	7	412
Positive	Non-Specific	....	2	4	....	....	....	6
Positive	Anti-Comp.	....	....	1	....	....	....	1
Total....................		48	307	316	12	91	10	784

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* Venereal disease.

the label of "present infection." As the causal virus has been isolated in asymptomatic cases and as the development of rectal stricture may apparently occur long after the initial infection, the conclusion that there may exist a prolonged period of latency with potential communicability and sequelae (in untreated cases) seems tenable at present.

Blair[1] reported that, out of 744 complement fixation tests performed routinely on specimens submitted for serologic tests for syphilis, 95 (12.8 per cent) were positive (4 plus at a dilution of 1:5 or higher). Frei tests were also performed on 41 of these 95 patients with a positive complement fixation test, and only 15 (36.6 per cent) were found to be positive. The authors' experience with negative Frei tests in the presence of positive complement fixation tests agrees with that of Blair.

Wright, Spencer, and Oppenheim[27] reported that in 1939 they performed routine Frei test on 1,073 adult patients admitted to the medical and surgical services of the New York Harlem Hospital because of diseases other than lymphogranuloma venereum. The patients had no symptoms of the disease. Of the group, 250 patients (23.3 per cent) had positive reaction to Frei tests—19 (12.2 per cent) of the white patients and 231 (25.2 per cent) of the Negro patients. However, among 130 children routinely given the Frei test, there were no positive reactions and only one doubtful. These findings show close correlation with the expected incidence of other venereal diseases in such groups; namely a low incidence of positive reaction to the Frei test in a group with a low expected venereal disease exposure rate. These observations regarding the specificity of the Frei test are similar to those of the authors. In a subsequent series of 209 patients admitted to the adult surgical wards of the Harlem Hospital, both Frei and complement fixation tests were performed. In this series, there was a close relationship between the results of the two tests. This observation disagrees with the observations of the authors and of others, perhaps because the series was small.

The high incidence of positive reaction to Frei tests and to complement fixation tests among patients with venereal disease is confirmed by other reports.[1,4,6,23] Some observers[1,23] believe that the high incidence of positive reaction to complement fixation tests is due to concurrent or previous lymphogranuloma venereum infection without clinical symptoms.

The low incidence of positive reaction to complement fixation tests in persons with a low rate of exposure to venereal disease is reported by others.[1,4,6,23] The low incidence is especially striking in children.[4,23]

CONCLUSIONS

Observations on 9,188 patients examined with the Frei test and complement fixation test for lymphogranuloma venereum suggest that the Frei test may be quite specific, whereas the complement fixation test is less so. Because it is less specific, the complement fixation test should not be used as an exclusion test.

The number of patients who, despite negative reaction to Frei test, had a positive complement fixation test and also had past or present symptoms referable to the disease, indicates that the diagnostic reliability of the complement fixation test is very low and that the test, therefore, is not an important diagnostic aid. It should, along with the Frei test, be available to all agencies who care for patients with venereal disease or who provide medical care for persons with a high rate of exposure to venereal disease.

It is quite possible that these tests are, in usage, parallel to the serologic diagnosis of syphilis. Multiple tests aid in arriving at satisfactory diagnostic conclusions. Reasonable conclusions depend upon readiness to suspect all venereal disease infections, upon clinical evidence, and upon these tests.

Lymphogranuloma venereum has been neglected by physicians both in private practice and in public health work. It warrants full respect. Its disabling effects, especially in the female, are considerable. As in syphilis, they can only be avoided by early diagnosis and active treatment. After scar tissue formation and contraction have taken place, medical therapy is of no value; the patient, if pathologic change is extensive and the symptoms are severe, may be relieved only by operation.

The possibility of a carrier state, especially in the female, exists. It has been observed that female sex contacts of persons known to be infected are often clinically asymptomatic but show a positive response to the diagnostic tests.

Diagnosis of the disease is essential, for the diminished use of sulfonamides in the control of venereal disease increases the possibility of a carrier state of those undiagnosed. For instance, penicillin, which has largely replaced the sulfonamides in the treatment of gonorrhea, has no therapeutic effect on lymphogranuloma venereum. Thus the disease may be untreated if undiagnosed.

It is recommended that all male and female patients who have symptoms indicative of disease of the inguinal lymph nodes or who are examined for genital clinical symptoms referable to a venereal disease should have a Frei test for lymphogranuloma venereum. All female patients admitted to a venereal disease clinic also should be given a Frei test.

Statistics suggest that this disease has been too infrequently suspected. Adequate examination for the disease is within reach of all venereal disease clinics.

Discussion by A. FRANK BREWER, M. D.*

Dr. Koch has again indicated for us that the prevalence of this disease is greater than many people suspect, particularly in groups of individuals who are venereally infected. It is evident from his work that not only private physicians, but public health clinics, do not recognize many of these cases and that complications of the disease are probably much more frequent than many have thought.

His postulation that there is a true latent stage similar to latency in syphilis is open to question. It is, however, probable that the disease is carried in the same manner as the virus of herpes simplex is carried, and that there is a trigger mechanism to reactivate it in certain instances, so that his postulation that all patients having a positive Frei test reaction should be reported and treated is a logical step in the control of the disease.

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*Chief, Venereal Disease Service, State Department of Public Health.

He mentioned the use of sulfonamides, but does not, however, mention some of the other antibiotics which seemingly are proving more specific than the sulfonamides. The question must be raised here that if persons with positive reactions to Frei tests are to be treated with the best-known antibiotics, would we not again be sensitizing a good many individuals for whom there is no definite proof that treatment would be of real benefit?

Basically, the conception that all venereal disease patients in public clinics and in the hands of private physicians should have Frei tests, I believe is sound: and the proposal that cases of lymphogranuloma venereum be reported is probably as sound as the reporting of latent syphilis. I doubt that the use of the complement fixation test, as well as the Frei test, in these cases is indicated as practical at this time, before some intensive education is carried on with the laboratories. Certain key laboratories might at this time be utilized. The complement fixation is technically difficult to perform properly and its specificity is questionable; and certainly true is Dr. Koch's statement that further evidence is needed to really measure the specificity and accuracy of the tests.

The large series of cases in the adult venereal disease group as compared to the low incidence in children certainly indicates that there is such specificity, especially in the Frei test. Dr. Koch has verified previously performed work in a number of instances and has added to our knowledge of the disease. His study certainly points up the fact that our index of suspicion should be much higher in regard to this disease than it generally is.

As was pointed out, there are questions in regard to the immunology of the disease yet to be clarified. The question of cross-reactions due to other viruses with similar sensitizations or antigenic components is certainly a valid one, and it may be that we are incorrectly diagnosing cases by use of the Frei test. I doubt that we can accept the statement that the number of present or past cases of infection with these other viruses is not great enough to seriously interfere with the value of the test in groups of persons in whom the exposure rate is high, since we are dealing generally with the group of persons who here are more likely to infection of all types and kinds, and whose general health is not as good as that of persons in other groups.

I agree heartily with Dr. Koch's conception that lymphogranuloma venereum warrants full respect, and agree generally that there is probably a carrier state and also that the Frei tests should be routinely used in venereal disease clinics. There is some question in my mind as to whether routine therapy should be given. Accepting reports of lymphogranuloma venereum on the basis of the Frei test, I believe, is at this time sound because it would give us a better knowledge of the distribution of the disease. More studies are needed on the carrier state, and on the virus from carriers.

Discussion by Paul Fasal, M. D., *San Francisco*

I feel that Dr. Koch has made a valuable contribution to public health by calling attention to a neglected aspect of our knowledge of lymphogranuloma venereum, namely a clinically asymptomatic stage. I fully agree with Dr. Koch that we all miss cases of lymphogranuloma venereum by diagnosing it by clinical features only.

Unfortunately, neither the Frei test nor the complement fixation test enables us to distinguish whether the process is still active or whether the patient had the disease in the past and is no longer contagious. From a public health point of view, it is the smaller evil to treat all patients having positive positive reactions in order to cover all potential carriers of this infection, provided we have drugs which are not only specific but at the same time non-toxic. So far, sulfa drugs have been used with some success, but it seems that this success is due to their action on secondary invaders and not on the virus itself. Reports on the action of aureomycin are encouraging, but it seems to be rather toxic. If chloramphenical proves to be what it seems to promise, we might at last have an effective and non-toxic weapon against lymphogranuloma venereum.

If we compare for a moment the Frei test with the serological tests for syphilis, I think we must call the Frei test a specific test, as it is performed with a specific antigen and gives group reactions only with closely related viruses, like psittacosis and trachoma. On the other hand, we do not use a specific antigen in serological tests for syphilis, and know only too well how many false positive reactions we get besides the positive reactions in the so-called syphiloid diseases.

Comparing the value of the Frei test with the value of the complement fixation test in lymphogranuloma venereum in Dr. Koch's tables, it seems obvious that the complement fixation test in its present form is of no practical value. In Table 5, for instance, we see in a group of 91 patients without any history or evidence of venereal disease, that 87 or 96 per cent had positive reaction to complement fixation tests, while all had negative reaction to Frei tests. As Dr. Koch told us that lymphogranuloma venereum is usually associated with other venereal diseases, we have reason to believe that the Frei test is correct and that these patients with positive reaction to complement fixation tests did not have lymphogranuloma venereum.

I fully agree with Dr. Koch that Frei tests should be performed on all patients with venereal disease and that the complement fixation test in its present form should not be used as it gives a very high percentage of false positive reactions.

To gain more information about the activity of the disease, determination of serum globulin and the albumin-globulin ratio could be used in Frei positive cases. Combes, Canizares and Landy suggest that the formol-gel test might help to differentiate active from inactive cases, as apparently hyperglobulinemia parallels the activity of the disease.

Lymphogranuloma venereum exists all over the world. I know from personal observations that it is a most important and frequent disease in the Far East and in Mexico. It can present great problems of differentiation in clinical diagnosis. In addition to syphilis, chancroid and granuloma inguinale, one has to think of tuberculosis, the lymphoblastomata, tularemia, and even mild plague, with which it has been confused often in former days. In Hong Kong, it was even called pestis minor.

Dr. Koch is to be congratulated to have brought this important subject to our attention, which is of special interest to physicians in California, where due to our geographic position we might expect an increase of existing cases of lymphogranuloma venereum from travelers, ship crews, and migratory workers.

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Safer Gastrectomy

100 Consecutive Cases Without Mortality

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SUMMARY

Duodenal stump disruption accompanied by fatal peritonitis is the complication most to be feared following gastrectomy and anastomosis by any one of the Billroth II modifications.

While many explanations of this complication have been presented and many means devised to prevent it, by far the most frequent cause is distention of the proximal duodenum because of obstruction at the stoma due to kinks, angulations or postoperative edema.

A supplemental report is made on a disintegrating T-tube designed to facilitate gastroenteric anastomosis, insure patency of the stoma and make impossible obstruction of the proximal loop.

This report covers 100 consecutive instances in which the disintegrating tube was used and emphasizes the favorable postoperative course usually experienced by the patients.

Whenever and wherever gastrectomy and anastomosis by any one of the Billroth II modifications is discussed there is always a note of warning about the danger of disruption of the duodenal stump as the complication most to be feared because it is the complication most likely to cause death. Much has been written both in explanation of this complication and as to means to prevent it. Attention has been directed to faulty suture technique as one of the causes of stump disruption. The use of too many layers has been blamed for failure to heal on the basis of interference with circulation. Cauterization of the stump has similarly been considered by some to be responsible. Then, too, the general condition of the patient, with particular reference to fluid and the electrolyte balance, serum proteins and vitamin status, has been weighed in connection with faulty healing.

The most common cause of stump disruption is a mechanical one and consists of increased intraluminal pressure consequent upon kinks, angulations or edema at the stoma, following which there is no satisfactory egress for the daily 1,500 cc. or more of bile, pancreatic and duodenal secretions, with resultant undue pressure upon the duodenal stump, which, however well it may have been sutured, ultimately gives way. McNealy[3] lays special stress upon the danger of this complication and presents his method for preventing pressure upon the stump by an infolding tamponade.

In 1945 one of the authors,[1] working with Mr. Grover C. Miller, chemist of the Seal-Ins Laboratories,* Los Angeles, designed a disintegrating tube to be placed in the gastroenteric stoma at the time of resection.

This tube is a further development of the principle used in the timed enteric coating for tablets and capsules developed by Mr. Miller several years ago. Its dependability has been proved by many investigators, including its use in intestinal anastomotic rings as reported by Richards and Thomas.[4] The material used in making these tubes varies somewhat from the enteric coating, but the principle is the same. Percentages are changed to meet timing requirements. These tubes are composed of the following: stearic acid, U.S.P., carnauba wax No. 1, white purified beeswax, petroleum jelly, powdered elm bark, and an antiseptic, merthiolate 1 to 7,000. Also, barium sulfate is combined in the mixture to cast a shadow in case it should be desired to take a roentgenograph at any time during the period of the tube's disintegration within the patient. This material has a melting point of approximately 85° C. The purpose of the powdered elm bark is to absorb water and expand; the expanding gradually splits away the waxes and permits a further penetration of the moisture into the wall. The timing is controlled by the percentage of elm bark used. There is a small thin reinforcement strand of silk imbedded in the walls of the tube which materially strengthens it, and not only reduces the danger of breaking at the time of operation but makes it impossible for any part of the tube to separate from the stem before disintegration takes place. The tube may be sterilized by placing it in a zephiran chloride solution, 1 to 1,000, for 15 minutes at room temperature.

This disintegrating tube is easily understood by reference to the accompanying illustrations. It is inserted into the anastomosis when all but the anterior suturing is completed. It lies loosely in the stoma without anchoring, but is held in that position by its configuration. Its multiple fenestrations encourage free flow of duodenal and gastric contents into the distal jejunum and make it impossible for blocking to occur. Its presence at the time of the anastomosis acts as an excellent guide for suturing and prevents the formation of kinks and angulations. With this framework, it is almost impossible to make a faulty anastomosis. It does not in any manner cause pressure upon the suture line or adjoining tissue. It disintegrates in approximately 96 hours, thus affording patency to the stoma during the most critical postoperative period, and removing itself automatically when that function is no longer required. No complication or untoward circumstance has arisen attributable to the use of the tube.

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*The authors have no financial interest in any product of the Seal-Ins Laboratories.

Sufficient experience with this device has now accumulated over the past three and a half years to justify a further report. This experience lends itself well to summary in the following tables:

Number of cases in which Alesen tube was used:
100 cases.

Average diet:
Liquid diet second day.
Soft diet third to fourth day.

Average temperature postoperatively:
100° to 101° F. first day.
Less than 100° F. by third day.

Type of operation:

1. Anterior Polya	58
2. Hofmeister Polya, anterior	32
3. Posterior Polya	4
4. Balfour Hofmeister, anterior	3
5. Posterior gastroenterostomy	2
6. Vagotomy and posterior gastroenterostomy	1

Indications for operation:

Intractability	43
Obstruction	23
Hemorrhage	25
Carcinoma	5
Leiomyosarcoma	1
Gastric ulcer	2
Malfunctioning gastroenterostomy	1

Classification as to difficulty encountered at operation:
Difficult, 61 (large chronic ulcers with considerable deformity and adherence to surrounding structures).
Simple, 39.

Types of complications:

Atelectasis	2
Mechanical small bowel obstruction	1
Pulmonary embolus	1
Ileus	1
Bronchopneumonia	1
Wound infection	1
Thrombophlebitis	1
Wound dehiscence	1
Subphrenic abscess and pulmonary embolus	1

Following the usual gastrectomy in which the disintegrating tube has been employed, the patient leaves the operating table with a Levine tube in place. On the morning of the first postoperative day he is encouraged to drink water freely. The Levine tube is connected with constant suction, thus affording thorough irrigation of the stomach and removal of accumulated mucus. At noon on the first postoperative day, the Levine tube is removed and the patient is given water, tea, and broth, at first in small quantities, but in increasing amounts as he tolerates them.

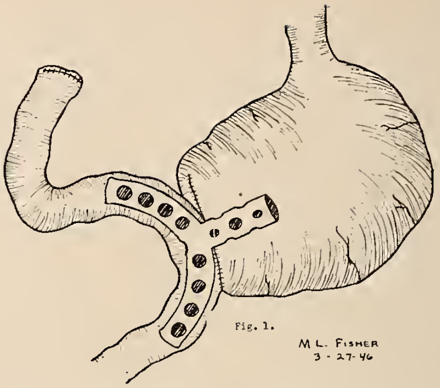

Figure 1.—Diagrammatic representation of the T-tube in position.

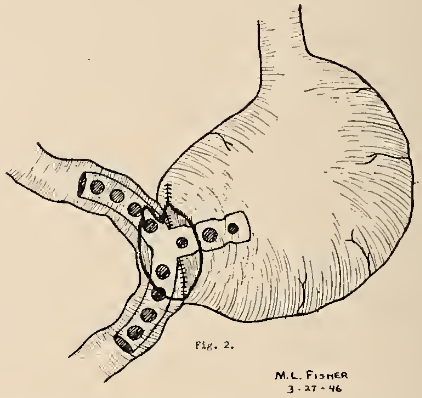

Figure 2.—Diagrammatic representation of the T-tube being placed loosely in the gastrojejunal stoma.

With the tube in place there can be no obstruction at the stoma and the only factor causing gastric distention and vomiting is the temporary paralysis of the bowel that usually is present for a certain length of time following gastrectomy or any other laparotomy. Just as soon as the bowel tone approaches normal and peristalsis is reestablished, the patient is able to take liquids freely. For this reason the double-barrelled feeding tubes are now almost never employed. These patients usually tolerate a soft diet on the third day and receive a light diet on the fifth. It has been necessary in approximately one-third of these cases to reinsert the Levine tube for a short time on the second postoperative day, for the reasons previously outlined.

The tube is not presented as a substitute for good surgical technique. Gentle handling of tissues and careful approximation are still as important as ever in obtaining good results. However, experience with the tube emphasizes certain very definite and valuable benefits which its use confers upon the patient:

1. Smoother postoperative convalescence. One of the most notable clinical observations is that the patients postoperatively are more comfortable from the very day of operation. It is refreshing to see them take nourishment early without discomfort, to

see their postoperative temperatures much lower on the average than formerly, and to be able to discharge them without untoward event, in many instances on the seventh postoperative day.

2. It will be seen by reference to the table that postoperative complications have been few, indeed, and these for the most part unrelated to the abdominal condition. Doubtless, early ambulation has played an important part in this favorable showing. The technically difficult resection of an indurated ulcer from the head of the pancreas is approached more optimistically with the knowledge that a troublesome closure will not be subjected to the hazard of increased intraluminal pressure during the first few postoperative days when so much depends upon the integrity of the suture line.

3. Types of operation have varied as will be apparent from the data, but in each instance the use of the disintegrating tube has added a factor of safety that has heretofore been lacking. Naturally, the surgeon will and should individualize in selecting the indication for the use of this device as for any other procedure, but it can readily be seen that it is particularly useful in those cases of carcinoma or gastric ulcer wherein a very high resection such as subtotal or almost complete gastrectomy is performed. These resections are notoriously hazardous from the standpoint of angulation and kinking at the stoma, and the use of the tube in cases of this type is particularly justified. The tube has been used quite satisfactorily in a number of gastroenterostomies as well.

ADDENDUM

Since these data were compiled, two deaths following gastrectomy for complicated duodenal ulcer have occurred. In one case the patient was a 61-year-old male with complete dehiscence of the abdominal wall on the sixth postoperative day. Following repair, bronchopneumonia developed, accounting for death. The duodenal stump was intact.

The second patient was a 55-year-old male with severe diabetes. Disruption of the duodenal stump developed on the fifth postoperative day and the patient died in spite of drainage. Autopsy showed a perfectly functioning gastroenteric stoma and a sound suture line. The duodenal stump, however, had not healed satisfactorily. This is the only instance of duodenal disruption following the use of the tube that has come to the authors' attention, notwithstanding that the tube is being used extensively in Los Angeles and elsewhere throughout the country.

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Management of Cord and Placental Blood and Its Effect Upon the Newborn

PART I

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SUMMARY

A comparative study was made of erythrocyte counts and weights of the newborn at term. Three groups were used: Cases in which the cord was clamped at once, those in which the cord was allowed to pulsate five minutes, and those in which the cord and placental blood was stripped into the baby. Standards and procedure were set up so that there would be a minimum of error.

Evidence was elicited showing that babies in the "pulsating" and the "stripped" groups received a significant amount of blood which was beneficial. The amount varied, but when the stripping method was used, the term baby received about 100 cc. of blood.

Babies receiving this blood had higher erythrocyte counts, higher hemoglobin values, higher initial weights, less weight loss, and less rapid loss of weight.

It is believed the additional blood supplied is of benefit especially to prematures and to those infants who are in any degree of shock following long labors, difficult deliveries, abruptio placenta, placenta previa, or compression of the cord.

The added blood benefits the baby by combating the initial shock, by aiding in filling the capillary bed of the expanding lungs, by increasing iron reserve, by lessening demand upon blood-forming organs (especially in prematures), by protecting the breakdown of body proteins and by aiding the transition from one source of oxygen to another.

Five minutes, as a rule, is not long enough to wait for pulsation if the baby is to receive its quota of available blood.

Stripping of cord and placental blood into the infant is not a harmful procedure when done gently and is particularly useful in cases where the condition of the mother or child is such that it is inadvisable to wait for the uterus to force the blood physiologically into the child.

The additional blood does not cause icterus.

The pulsating of the umbilical cord plays only a minor role in the process by which the baby receives blood after the second stage of labor. The pressure of the uterine contractions upon a blood-filled placenta, forcing blood through the umbilical vein into the child, plays the major role. Pitocin and/or ergot preparations would aid in this process.

Anemic mothers have a tendency toward having anemic babies.

Venous pressure experiments using a phlebaumanometer showed pressures before and after stripping, the force of uterine contractions on the umbilical vein pressure and the variation in pressure with crying and at rest. The giving of 100 cc. of blood by stripping affects the venous pressure of the child very little, if done slowly. If the stripping is done rapidly, there is a transient rise with a return to normal within a few minutes.

A survey of 1,900 diplomates of the American Board of Obstetrics and Gynecology showed that there is wide variation in the management of cord and placental blood. Of 455 specialists who stripped the cord, five thought there was some increase in icterus, and one reported cardiovascular distress.

The patient in premature labor with a questionably viable baby is a familiar and all too-frequent problem. The usual precautions are taken: The fetal heart is carefully observed for signs of distress, analgesia is held to a minimum, Vitamin K is administered. When dilatation of the cervix is complete and the presenting part on the perineum, an anesthetic having minimal effect upon the baby is given, usually caudal or low spinal. An episiotomy is made and the premature child carefully delivered. The umbilical cord is then usually cut immediately, the air passages cleared, and the child rushed to the incubator. A pediatrician is summoned and all agree that if the child "has the spark" it will survive; if not, it will die. Why do some not have the "spark"? One reason which prompted the study here presented was to try to answer this question.

A statistical survey of the maternal and infant mortality at the Hospital of the Good Samaritan over a 20-year period showed a dramatic decline in

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Chairman's Address: Presented before the Section on Obstetrics and Gynecology at the 78th Annual Meeting of the California Medical Association, Los Angeles, May 8-11, 1949.

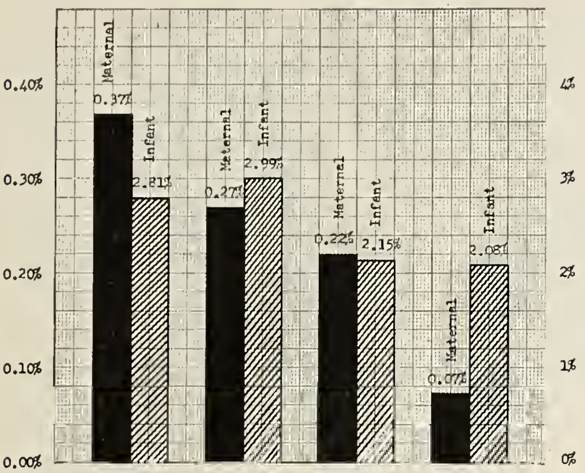

Chart 1.—Maternal mortality and infant mortality at the Hospital of the Good Samaritan in periods of five years. (Based on material from: Fagan, Robert H.: Maternal and infant mortality, West. J. Surg., Obst. & Gynec., 55:584-596, November, 1947.)

the maternal mortality rate (from 0.37 per cent to 0.07 per cent) while the infant mortality rate decreased only from 2.81 per cent to 2.08 per cent (Chart 1). A high percentage of the infant deaths was due to prematurity.

Premature babies not only appear to be underdeveloped but are often in varying degrees of shock. Can this be partially due to an insufficient blood volume? Since anemia is almost a constant finding, perhaps what they need most for survival is blood.

Anemia is due to several factors: (1) The underlying cause of the premature labor may be abruptio placenta, or placenta previa, either of which would deprive the infant of its normal quota of blood. (2) Compression of the cord with the resulting interference of blood flow to the child. (3) Poorly developed blood-forming organs, which is characteristic of prematures. Such babies quickly use up their reserve supply of blood.[3] (4) Immediate clamping of the cord deprives the child of blood present in the cord and placenta. At the 28th to 30th week in the circulatory system of the baby, cord, and placenta, it is believed about 50 per cent of the blood volume is in the cord and placenta. It is felt that the premature baby needs a good share of this cord and placental blood to give it the best chance for survival.

In 1885, Engle[6] reported twice as great a mortality in premature infants whose cords were tied early as in those whose cords were tied late. This is understandable because the placenta reaches its maximum relative size at about the fifth month and contains a greater proportion of the fetoplacental blood volume.

There are times when the condition of the mother or baby, or both, makes it inadvisable to wait until the cord stops pulsating or the uterus to compress placental and cord blood into the baby, and since the giving of a transfusion to a premature baby in an incubator is a difficult and often traumatic procedure, it occurred to the authors that the immediate, gentle stripping of the cord and placental blood into the baby might be the simplest and surest method of giving the blood they all seem to need. Also it was felt that, because of the need for haste, this might be the method of choice in term babies delivered by cesarean section. At term, about one-third of the total blood volume in baby, cord, and placenta is in the cord and placenta[5] and part of this might benefit especially those babies who were in mild or severe shock following prolonged labor, forceps delivery, or other obstetrical procedures or conditions such as placenta previa, abruptio placenta, and compression of the cord.

In order to determine the effect of cord and placental blood upon infants, blood studies were made in three groups of cases: First, those in which the cord was clamped at once; second, those in which the cord was allowed to pulsate five minutes; and third, those in which the cord and placental blood was stripped into the infant.

Complete blood cell counts and bleeding and clotting time determinations were made in all cases within two hours of birth and on the fifth postpartum day. The counts were all done by the same laboratory and a large percentage by the same technician. The mothers were at term, Rh positive, had uneventful prenatal courses, normal labor and delivery. Demerol, scopolamine, and seconal were given for analgesia and a low spinal was the anesthetic used in all cases.

It has been known for years and proved by many workers[2, 4, 10, 11, 13, 17, 18] that if there is a waiting period following delivery at term, before the cord is clamped, the baby will receive on the average of an additional 90 cc. of blood. Budin[2] (1876) and Schucking[17] (1877) were the first to prove this fact. Schucking believed the increased volume occurred because the blood was forced into the child by uterine contractions. This has been noted by other workers, and the authors satisfied themselves that this was true by repeating Schucking's experiments and putting the child on scales with the cord attached and watching the weight increase, especially with each contraction of the uterus. This emphasizes that it is primarily the contracting uterus upon a blood-filled placenta which forces blood into the fetus, and not the pulsating of the cord.

Most observers, and especially De Marsh,[4] believe this additional blood to be beneficial to the baby. It has been said that "not to let the baby have this blood is equivalent to allowing an adult to bleed 500 cc." Physiologically the baby needs this blood because: First, it helps fill the the capillary bed of the expanded lungs; second, it increases the iron reserve. Wilson, Alt, and Windle[20] state: "The amount of iron lost to the newborn when 100 ml. of placental blood is prevented from reaching the child amounts to 54 mg. This is enough to lower the hemoglobin level of a four-months-old infant from 12 to 9.3 gm. per 100 ml. of blood. It seems likely, therefore, that the loss of placental blood may predispose infants to anemia later, since the principal blood reserve lies in the circulating hemoglobin rather than in the tissues." Third, it lessens the demand upon the splenic reservoir of blood.[21] Fourth, in premature babies it lessens the demand upon the poorly developed blood-forming organs.[3] Fifth, it is a source of nourishment which protects infants against the breakdown of body proteins. An increased excretion of nitrogen occurred in infants whose cords were cut early.[16] Sixth, less weight loss and more rapid weight gains were noted when the cord was cut late. This was first observed by Schiff in 1892.[16] Seventh, higher erythrocyte counts and hemoglobin values bridge more smoothly the transition from one source of oxygen to another by maintaining a higher oxygen carrying capacity.[14] Eighth, it would help maintain an adequate blood pressure, since all premature infants have relatively low blood pressure readings.[1]

The stripping of blood from the cord was started with caution, since it is a controversial procedure. De Lee[3] states in his text: "It is an error to force blood of the placenta into the child by stripping the cord towards the child. This overloads blood vessels, causes icterus, melena, even apoplexy." However, after consulting various pediatricians, cardiologists, and obstetricians, it seemed doubtful that harm could be done if the stripping were done gently and slowly. If 100 cc. of Rh-positive blood were physiologically beneficial to the term baby (or about 50 cc. to premature infants) it would seem to make little difference whether it were: (1) forced into the baby by uterine contractions; (2) stripped into the baby, except that by stripping the baby received blood at once and with ease; or (3) given by syringe as a transfusion.

Several questions presented themselves in proceeding with the stripping method:

1. How much blood was stripped into the baby?
2. Through which cord vessels did it pass?
3. Where did it go immediately after leaving the cord?
4. Did it affect the blood pressure to a harmful degree?
5. What effect did it have clinically upon the infant and the blood picture, as compared to the other groups in the series?

The first, as to how much blood was stripped into the baby, was easily answered from reports in the literature,[4] and by observations. The amount reported was about 100 cc. In the authors' cases, the minimum was 75 cc., and the maximum 135 cc., and there was no relationship between the long and the short cords as to the blood volume. The short cords had more tortuous vessels or larger vessel diameters, or both.

The second question, through which cord vessels did the blood pass, was answered by clamping off the umbilical vein and measuring the amount stripped from the hypogastric arteries, and in other cases clamping off the hypogastric arteries and measuring the amount stripped from the umbilical vein. Only a few drops could be stripped from the hypogastric arteries and about 100 cc. could be obtained from the umbilical vein.

Third, where did it go immediately after leaving the cord? The blood from the umbilical vein passes directly into the ductus venosus, then into the inferior vena cava. A small amount passes through the hepatic veins. Thus, when blood is forced into the venous system, the pressure is distributed mainly up and down the infant's vena cava and its tributaries.

Fourth, did it affect the blood pressure? Venous pressure studies showed no significant change following stripping of the cord blood into the baby.

Venous Pressure Studies*

Subject: Female Infant A

Pressure in the umbilical vein:	
Before stripping—	
Vein occluded and baby crying	22 mm. Hg.
After stripping an estimated 100 cc. of blood into the baby—	
Vein occluded and baby not crying	11 mm. Hg.
Vein occluded and baby crying	20 mm. Hg.

Subject: Male Infant B

Pressure in the umbilical vein:	
Before stripping—	
Vein occluded and baby not crying	7 mm. Hg.
After stripping (rather rapidly) an estimated 100 cc. of blood into the baby—	
Vein occluded and baby not crying	45 mm. Hg.
Five minutes later	11 mm. Hg.

It is believed the immediate rise in pressure was due. in this case, to the rather rapid stripping of blood into the baby.

Subject: Female Infant C

(With cord clamped midway between placenta and baby)

Venous pressure on baby's side	24.6 mm. Hg.
Venous pressure on mother's side	25.4 mm. Hg.

Approximately two minutes later 10 units of Pitocin® was given and the pressure on the mother's side rose to 110 mm. Hg., and then to 130 mm. Hg. This is extremely significant since it illustrates the method by which a baby obtains blood—the strongly contracting uterus causing a very high umbilical vein pressure which easily overcomes the relatively low venous pressure of the baby.

Uterine contractions and crying of the baby caused wide variations in umbilical pressures:

Uterus relaxed	10 mm. Hg.
Uterus contracting	18 mm. Hg.
Baby crying	18 mm. Hg. 21 mm. Hg.
Baby at rest	8 mm. Hg. 12 mm. Hg.

Further pressure studies are being carried out and will be reported at a later date.

Fifth, the clinical effect upon the infants receiving blood by stripping was beneficial. In the 50 cases no harmful effects were observed and there was no increase in icterus.

It is commonly thought that babies receiving this blood by "pulsating" or "stripping" have a high incidence of icterus. This was not borne out in the author's series, or by Franklin, Frankael, or Find-

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*Venous pressures were recorded by using the phlebaumanometer on the umbilical vein of a newborn baby with the placenta attached. The umbilical vein was obstructed with a hemostat. (See Figure 1.)

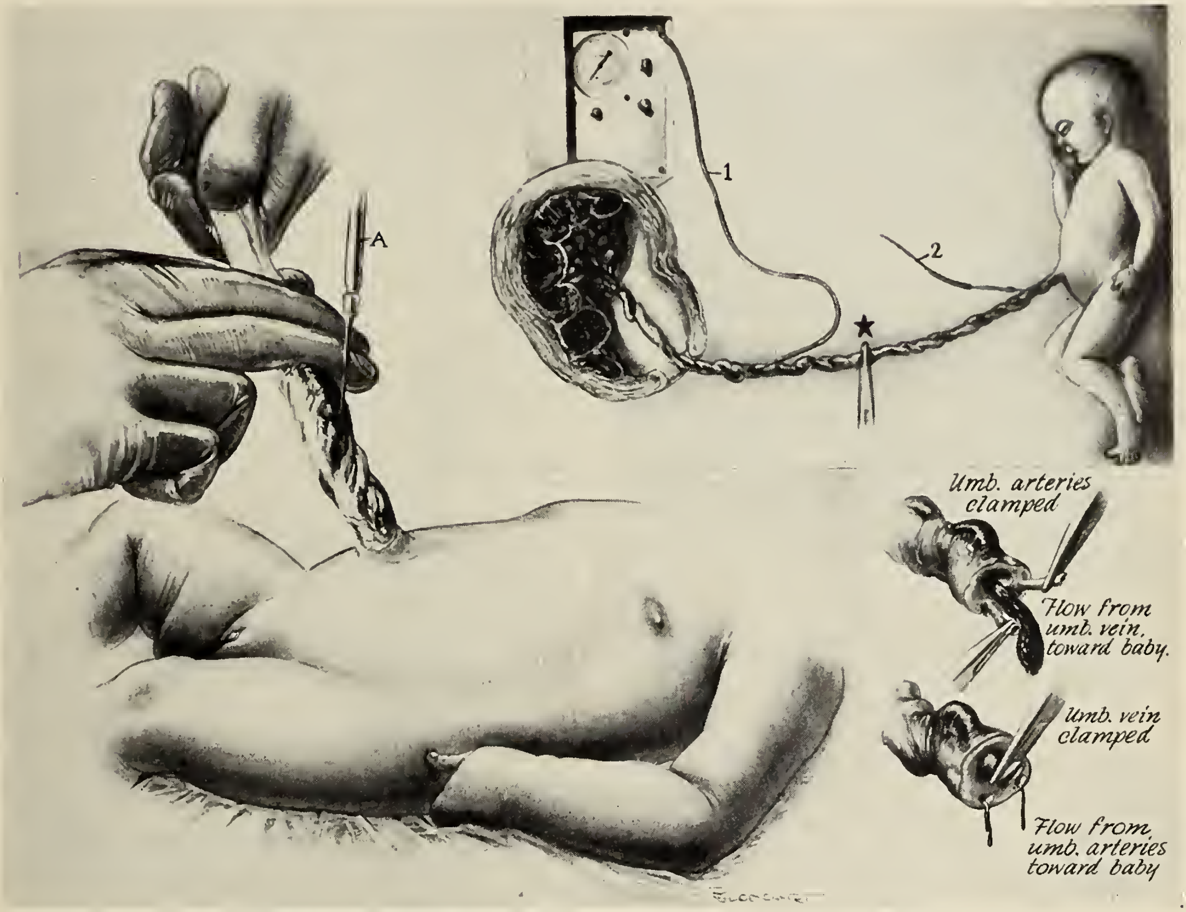
A
1
2
★
Umb. arteries clamped
Flow from umb. vein, toward baby.
Umb. vein clamped
Flow from umb. arteries toward baby

Figure 1.—Showing the method used in determining venous pressures.

lay, Higgins, and Stanier,[7, 8, 9] who could detect no difference in rates of fall of hemoglobin as between infants who were jaundiced and those who were not. Another argument against a theory of excessive hemolysis is that no hemolysin can be demonstrated in the blood of the newborn (except in erythroblastosis).[7,19] Hoet[12] and Renaer[15] explain icterus in terms of failure of the liver to excrete pigment at the normal rate. With this, Weech[19] agrees, stating that if hepatic function is mature, excretion will be prompt; if immature, excretion will be delayed and serum concentration of bilirubin will rise.

In the series here reported there were 42 cases in which the cord was clamped at once, 36 cases in which the cord was allowed to pulsate five minutes, and 50 cases in which the cord and placental blood was stripped into the baby. For the sake of simplicity they shall be referred to as "clamped," "pulsating," and "stripped."

It is believed that the blood cell counts made on the fifth day offer a truer picture than the counts made at two hours, since the later counts reflect hematologic adjustment. The difference might be compared to the difference in accuracy between evaluation of the blood picture immediately following a blood transfusion or a hemorrhage, and evaluation some time later.

Table 1 and Chart 2 show the average erythrocyte count at two hours and at five days, in the three classes—clamped at once, pulsating, and stripped. It is interesting to note the relatively small drop in the "stripped" cases. This is against the general impression that more blood causes icterus.

Table 1.—*Average Erythrocyte Count at 2 Hours and at 5 Days in Three Classes: Clamped at Once, Pulsating, and Stripped.*

Class	Average at 2 Hours	Average at 5 Days	Difference	Expressed as Per Cent of Aver. at 2 Hours
Clamped at once	5,377,073	4,946,097	430,976	—8.02
Pulsating	5,958,888	5,369,166	589,722	—9.90
Stripped	5,851,800	5,742,800	109,000	—1.86

The difference between the averages for clamped and pulsating are about the same as in other published series.[4, 10] The difference between the averages for "clamped" and "stripped" at five days—796,703 erythrocytes—is much greater and certainly significant.

Table 2 shows the number of cases in each of the three classes — clamped at once, pulsating, and

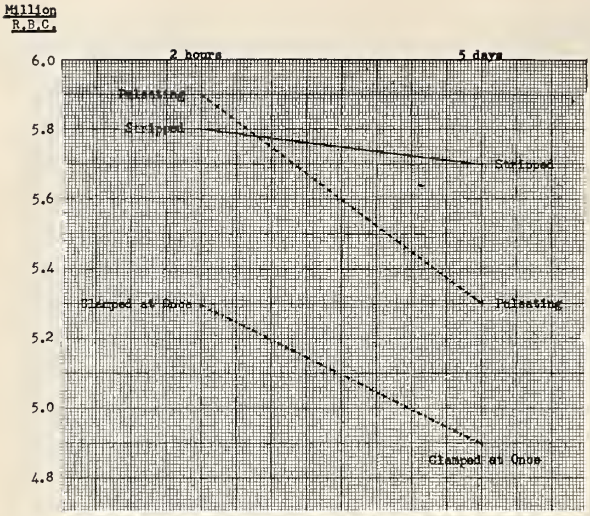

Chart 2.—Relation between the averages of erythrocyte counts at two hours and at five days in the three classes —clamped at once, pulsating, and stripped.

Table 2.—*Number of Cases in Each of the Three Classes (Clamped at Once, Pulsating, and Stripped) in Which the Erythrocyte Count at 5 Days Showed Lower Values Than at 2 Hours*

Class	Total Number of Cases	No. of Cases Showing a Decline at 5 Days	Expressed as Per Cent of Total Number
Clamped at once	41	31	75.6
Pulsating	36	27	75.0
Stripped	50	29	58.0

stripped—in which the erythrocyte count at five days was less than at two hours. In 42 per cent of the "stripped" cases there was no decline at all.

Chart 3 shows the relation between the averages of erythrocyte counts at two hours and at five days in cases in which the counts were above average at two hours: There was a rapid drop in all three groups, but it was less in the stripped group.

Chart 4 shows the relation between the averages of erythrocyte counts at two hours and at five days in cases in which the counts were below average at two hours: In this group there was a much less rapid drop in the clamped-at-once and pulsating categories; in the stripped cases there was an actual increase.

Chart 5 shows average weights at birth, at the time of lowest reading, and at five days in the three classes. In the clamped-at-once category, the average decline from the birth weight to the lowest weight was 7.7 per cent; in the pulsating group, 6.9 per cent; in the stripped group, 4.3 per cent. Thus, in those cases in which the cord was stripped, the babies weighed more, because of receiving more blood, they lost weight less rapidly and their total loss was less.

Chart 6 shows the average hemoglobin content, expressed in grams per 100 cc., at two hours and at five days after birth. Here again stripping showed to advantage: There was no fall in hemoglobin in the stripped group at five days, whereas there was a considerable fall in the pulsating and clamped groups.

It is believed that five minutes is not long enough to wait in the pulsating group; had more time been allowed, it is probable that a more striking difference would have been noted between the pulsation group and the clamped series.

Do anemic mothers have anemic babies? The authors do not have enough cases to draw definite conclusions regarding this question; however, in

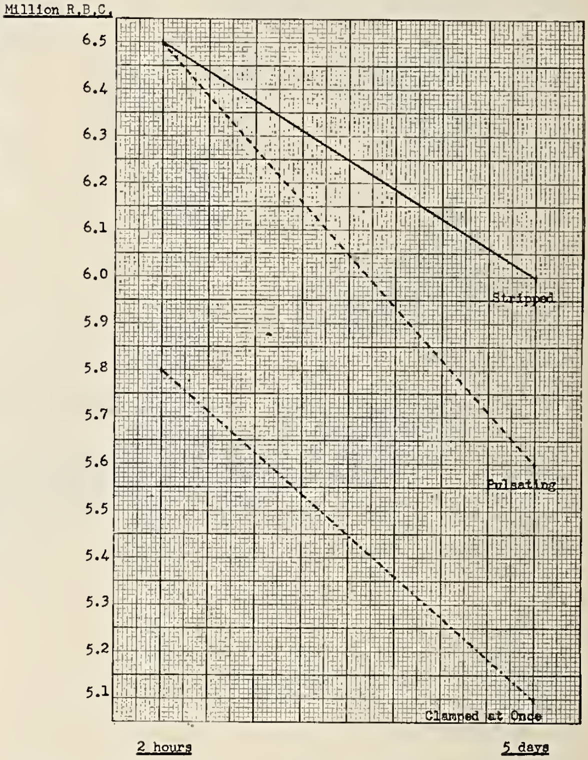

Chart 3.—Relation between the averages of erythrocyte counts at two hours and at five days in cases above average at two hours—clamped at once, pulsating, and stripped.

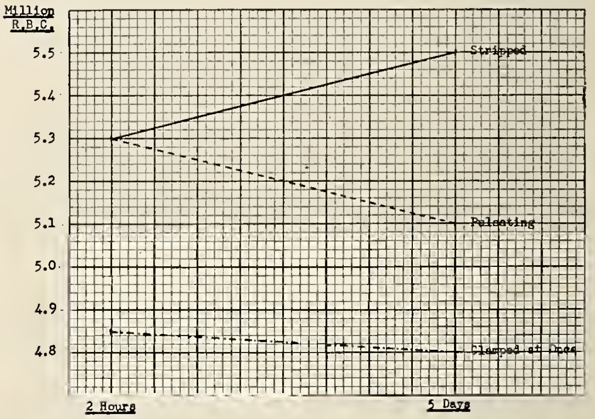

Chart 4.—Relation between the averages of erythrocyte counts at two hours and at five days in cases below average at two hours—clamped at once, pulsating, and stripped.

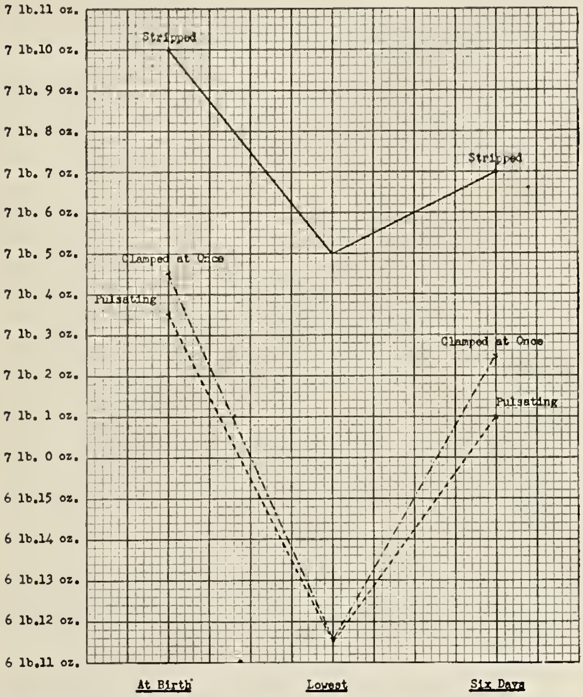

Chart 5.—Average values at birth, at time of lowest reading, and at six days in the three classes—clamped at once, pulsating, and stripped.

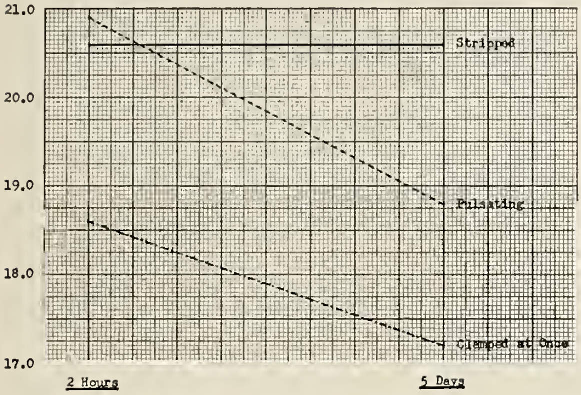

Chart 6.—Average hemoglobin content expressed in grams per 100 cc. at two hours and five days after birth—clamped at once, pulsating, and stripped.

the cases of ten mothers who had low hemoglobin values (72 per cent or under) on their fifth post-partum day and who had lost less than an estimated 200 cc. of blood at delivery, there was a tendency toward lowered hemoglobin content in the blood of the babies. The babies in these ten cases had an average of 15.8 grams of hemoglobin per 100 cc. (a value of 93.8 per cent) compared with the average in the clamped group of 17.5 grams per 100 cc. and a value of 102.4 per cent.

In order to determine the usual practice regarding the management of cord and placental blood, and to obtain an opinion regarding the possible harmful effects of "stripping" the cord, a questionnaire was sent to 1,900 diplomates of the American Board of Obstetrics and Gynecology. Replies (1,198) came from almost every state. Tables 3, 4 and 5 show the results.

Table 3.—*Time of Clamping the Umbilical Cord*

1,198 answers received to 1,900 questionnaires sent to diplomates of the American Board of Obstetrics and Gynecology

Cord clamped immediately after birth		497	41.5%
Cord clamped less than 5 minutes after birth	400		
Cord clamped after pulsations have ceased	191		
Cord clamped somewhat later; exact time not indicated	110		
Number of cases in which cord was clamped somewhat later		701	58.5%
Total number of answers		1,198	100.0%

Table 4.—*Stripping of the Umbilical Cord*

1,198 answers received to 1,900 questionnaires sent to diplomates of the American Board of Obstetrics and Gynecology

Obstetricians stripping the cord:			
Occasionally	53		
Frequently	1		
Always	22		
In prematures	21		
Not specified	358		
Number of obstetricians stripping the cord		455	38.0%
Number of obstetricians not stripping the cord		743	62.0%
Total number of answers		1,198	100.0%

Table 5.—*Obstetricians Reporting Harmful Effects from Stripping of the Umbilical Cord*

Number of obstetricians practicing stripping of the umbilical cord	455	
Obstetricians complaining about harmful effects of stripping		6 = 1.3%
Nature of Complaint		
Icterus		5 = 1.1%
Cardiovascular distress (following vigorous stripping)		1 = 0.2%

From these figures it must be concluded that there has been no uniformity as to the teaching in our medical schools regarding the management of cord and placental blood and no consistency of practice among specialists in obstetrics. However, of 455 specialists who stripped the cord, only one noted harmful effects other than icterus, and this a questionable effect of stripping.

PHYSIOLOGY OF FETAL-PLACENTAL CORD CIRCULATION

The fetal circulation is well known to all obstetricians up until the delivery of the child. What happens and what should be done between the second and third stages of labor has caused a great deal of confusion and there is wide variance in practice. The authors believe that as soon as the child is delivered there is an immediate reduction in the size of the placental site, the placenta begins to separate at once, and thus placental circulation is disrupted. Then the uterus contracting upon a blood-filled placenta forces blood through the umbilical vein into the baby. It has been shown that the strongly contracting uterine muscle causes a high venous pressure which easily overcomes the weaker venous pressure of the fetus. The umbilical vein remains dilated long after the umbilical arteries have ceased to pulsate. The cessation of pulsation of the cord is not the criterion as to the proper time for clamping the cord. Instead, when the contracting uterus no longer causes pressure in the umbilical vein, *that* would be a much better time to sever the cord. De Marsh, Alt, Windell, and Hillus[4] found that after the cord stopped pulsating they were able to obtain an average of about 60 cc. from the cord by stripping.

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The authors wish to thank all those who aided in this study; the nursery and delivery room nurses, the record room personnel of the Hospital of the Good Samaritan; the clinical laboratory which donated time and material, and Dr. Travis Windsor, head of the Cardiovascular Foundation at the Hospital of the Good Samaritan, without whom the venous pressure studies could not have been done.

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Bacterial Meningitis and Other Diseases Affecting the Meninges

A Review of 349 Cases

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SUMMARY

Three hundred and forty-nine cases of disease affecting the meninges were observed at the San Bernardino County Charity Hospital in an eight year period.

A total of 29 patients with meningococcal, H. influenzae and pneumococcal meningitis were treated. There were four deaths, of which three occurred during the first 24 hours in the hospital.

Of 22 cases of unclassified meningitis, four probably were tuberculous, four probably were meningococcal and two probably were of virus origin.

Under present treatment programs the differentiation between viral and bacterial meningitides is difficult and it is possible, therefore, that the reported incidence of the two groups may not represent the facts.

Of 22 cases of unclassified meningitis, 12 had no specific characteristics which would permit a clinical diagnosis. One of the patients died.

Of 70 cases of clinical meningitis, the infecting organism was identified in 69 per cent.

Meningococcal meningitis made up only 17 per cent of 70 cases of purulent meningitis observed between July 1, 1945, and July 1, 1948.

FAILURE to find the causative agent in 31 per cent of series of 70 cases in which clinical and laboratory evidence was indicative of bacterial meningitis suggested that a broad inquiry into the field of "meningeal disease" as it has occurred over a period of eight years in a stable community might warrant description and comment.

Approximately 90 per cent of the patients with poliomyelitis and meningitis reported to the San Bernardino County health officer are cared for in the contagious disease ward of the San Bernardino County Charity Hospital (Table 1). It is the only facility which accepts contagious disease occurring among the civilians in a county of 20,157 square miles with a population estimated at 264,895 (Table 2). Although only 60 miles from Los Angeles, distance and topography result in a concentration of serious contagious disease cases in this hospital, which probably makes its experience more representative of a given geographical area than that of most isolation units.

Discharge diagnoses of diseases affecting the meninges were recorded on 349 patients admitted to the contagious disease ward between July 1, 1940, and July 1, 1948. In 154 of these cases the disease was considered to be of viral origin, as indicated in Table 3.

A more detailed study was made of the 144 patients in this category admitted after July 1, 1945, when penicillin was first generally used in this hospital. This group comprised 48 cases in which the infective agent was demonstrated, 22 cases of probable bacterial disease and 74 cases thought to be of viral origin.

The current literature[3, 5, 9] contains no reports in which the incidence of cases of bacterial meningitis and virus diseases presenting meningeal signs is compared, yet the borderline between the virus infections of the central nervous system, tuberculous infections, and the penicillin-sensitive and sulfonamide-sensitive bacterial meningitides is less clear-cut than one might suppose.

The incidence of certain of these etiologically unrelated diseases in the state and in San Bernardino County is compared in Chart 1. During an eight year period in this hospital the seasonal incidence of epidemic meningitis, "unclassified" meningitis and poliomyelitis (Chart 2) indicates that the curve representing "unclassified" meningitis has two peaks, one corresponding to the peak incidence of epidemic meningitis and the other corresponding to the peak incidence of poliomyelitis. Although these figures are not statistically significant in this small series, it is suggested that the "unclassified" group contains appreciable numbers of cases of virus infection of the central nervous system. In a smaller series an attempt is made in Chart 3 to break down the unclassified group into clinical entities.

As might be expected, it proved to be impossible to reconcile the state, county and hospital statistics. Differences in the reporting year make direct comparisons impossible, and Table 1 indicates the extent to which disease entities other than meningococcal meningitis swell the reported incidence of "epidemic meningitis."

Chart 1 is drawn from data furnished by the California State Department of Health. Table 1 is derived from the contagious disease register of the San Bernardino County Health Department and subsequent cross-check with the San Bernardino County Charity Hospital files.

Data derived directly from the case records of the San Bernardino County Charity Hospital were used in compiling Tables 3 and Tables 5 to 13 and Chart 3.

From the Medical Service, San Bernardino County Charity Hospital.

Table 1.—*Proportion of Patients With Meningeal Disease Reported to San Bernardino County Health Officer Who Were Treated at the San Bernardino County Charity Hospital.*

	1942		1943		1944		1945		1946		5-Year Average
	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Per Cent
Poliomyelitis	4	50	23	100	5	80	10	90	25	84	88
Encephalitis*	1	0	0		2	100	3	100	3	100	89
"Epidemic" Meningitis†	1	100	21	86	11	91	15	100	16	88	91

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* Includes one case of mumps encephalitis.

† Includes eleven cases not due to meningococcal infection, but treated at the San Bernardino County Charity Hospital. Of the six cases not treated at the San Bernardino County Charity Hospital, three were treated in military hospitals.

Table 2.—*Characteristics of San Bernardino County—Population and Climate*
(Data furnished by the Office of the County Board of Supervisors)

Climatic Zones	Estimated Population	Summer Temperature	Winter Temperature	Rainfall
Mountain	9,506	35° to 80°	—5° to 50°	36 in.
Desert	32,566	71° to 104°	35° to 61°	5 in.
Valley	222,823	57° to 96°	37° to 67°	19 in.

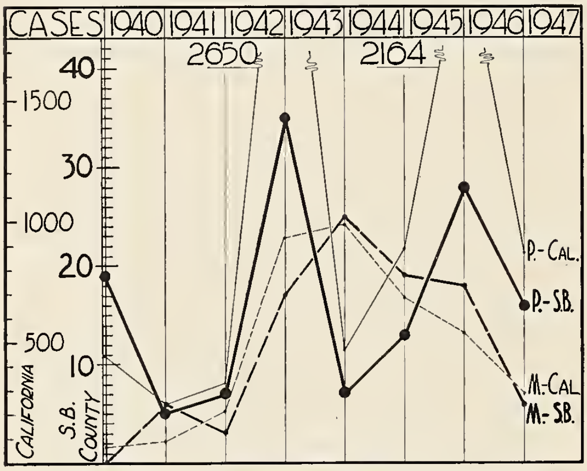

Chart 1.—The reported incidence of poliomyelitis and meningococcic meningitis in California and in San Bernardino County in 1940-1947. (Courtesy of J. A. Moore, M.D., Chief, Acute Communicable Disease Service, State of California, Department of Public Health.) Legends: P—Poliomyelitis; M—Meningitis; CAL.—California; S.B.—San Bernardino County.

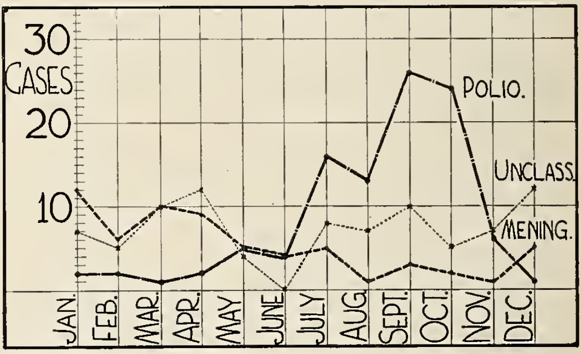

Chart 2.—The seasonal incidence of poliomyelitis, meningococcal meningitis and unclassified meningitis at the San Bernardino County Charity Hospital from July 1, 1940 to July 1, 1948.

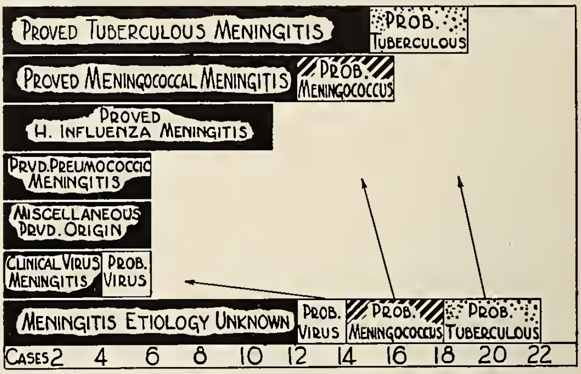

Chart 3.—Meningitis at the San Bernardino County Charity Hospital from July 1, 1945 to July 1, 1948.

The routine admission procedure at this hospital involves examination of the patient by the clinic intern and by the ward intern, with resident and staff consultation as indicated. The records show that this procedure was generally followed. Lumbar puncture was often done in the clinic prior to admission and almost always before treatment was started. The routine blood count, urinalysis, and serological tests for syphilis, however, were not generally done until the next morning on patients admitted in the afternoon.

The spinal fluid was examined for cells, organisms, globulin (Pandy test) and sugar routinely. Cultures were made in the laboratory on blood agar plates. Thioglycollate media with or without blood, or added paraminobenzoic acid, and Loeffler's media were used as indicated. High carbon dioxide tensions were often used. Penicillinase was rarely used. In general, the spinal fluid chloride level was determined only in cases in which tuberculosis was suspected, and a few tuberculosis cultures and guinea pig inoculations were done. Pneumococcus and H. influenzae typing was done on the spinal fluid sediment and on cultures as indicated.

Blood cultures were rarely taken and none was reported as positive. No positive smears or cultures were reported from petechiae.

Two specimens of blood from each of six patients were sent to the virus unit of the California State Department of Health and all were reported negative for St. Louis encephalitis, western equine encephalomye-

Table 3.—*Meningeal Diseases at the San Bernardino County Charity Hospital, 1940-48*

	1940-48		1940-45		1945-48		Mortality		Corrected Mortality‡
	Cases	Deaths	Cases	Deaths	Cases	Deaths	1940-45	1945-48	1945-48
Poliomyelitis*	102	6	57	5	45	1	9%	2%	....
Encephalitis*	43	9	18	6	25	3	33%	12%	....
Lymphocytic choriomeningitis*	9	0	5	0	4	0	0	0	....
Total virus diseases	154	15	80	11	74	4	0	0	....
Tuberculosis†	50	50	37	37	13	13	100%	100%	....
Meningococcus†	62	10	50	9	12	1	18%	8%	8%
H. Influenzae†	20	9	9	7	11	2	78%	18%	0
Pneumococcus†	14	7	8	6	6	1	75%	17%	0
Other identified†	12	5	6	4	6	1	66%	17%	17%
Total identified meningitis	158	81	110	63	48	18	....	....	....
Unclassified meningitis*	37	9	15	4	22	5	27%	23%	....
Total clinical meningitis	195	90	125	67	70	23	....	....	....
Total meningeal disease	349	105	205	78	144	27	....	....	....

* Clinical diagnosis only. † Proved diagnosis. ‡ Deaths under 24 hours excluded.

Table 4.—*Bacterial Meningitis in Three Hospitals*

	Cook County*	San Francisco County†	San Bernardino County‡	
	1943-45	1943-46	1940-45	1945-48
	Cases	Cases	Cases	Cases
M. Tuberculosis	12	14	37	13
N. Meningococcus	297	182	50	12
H. Influenzae	10	7	9	11
D. Pneumoniae	26	40	8	6
Other identified	4	22	6	6
Unclassified	51	....	15	22
Total cases in series	400	265	125	70

* Cook County Contagious Disease Hospital, 15 months, December 1, 1943 to March 1, 1945. Meningococcus group includes 17 per cent diagnosed on clinical grounds alone. Reported by Rhoads.[9]

† San Francisco Hospital, Isolation Division, 24 months, January 1943 to February 1946. Diagnostic criteria not stated. Reported by Brainerd and Bradley.[3]

‡ See Table 3, 60 and 36-month periods respectively.

litis and mumps encephalitis. Two of these were also negative for lymphocytic choriomeningitis.

M. Tuberculosis Meningitis

Thirteen patients with bacteriologically or pathologically proved tuberculous meningitis were treated as indicated in Table 5. All died. Nine were males. Six were aged two or less and four more were under the age of five years. Eight were of Mexican parentage. Only those patients presenting meningeal symptoms on admission to hospital or dying with predominating symptoms of meningeal disease are included in this group; patients with general tuberculosis and minor meningeal involvement are omitted.

Symptomatically related illness preceded hospital admission by one to three days in five cases; in the remaining eight cases the patients had been ill up to eight weeks. All but three had stiffness of the neck and a positive Kernig's sign. None was in deep coma and three had no detectable blunting of consciousness. Four children had convulsions before admission and another child had some weakness of the left facial nerve. One had chronic otitis media.

Four patients were previously known to have pulmonary tuberculosis and three other patients (under age four) were known to have been in contact with open tuberculosis. No source of infection was uncovered in four cases in which apparently adequate data were available.

The temperature on admission ranged from 97.6° F. to 103.4° F.; it was 101° F. or below in nine cases.

The leukocyte count ranged from 6,900 to 28,000; only three patients had admission counts under 14,500.

The spinal fluid showed pleocytosis of from 30 to 2,200 cells with zero to 82 per cent polymorphonuclear cells in 12 cases. Spinal fluid under increased pressure but containing only 6 cells was found in another case. The count was below 100 in four cases and over 1,000 in one case. Polymorphonuclear cells exceeded 50 per cent in only two specimens.

Spinal fluid globulin was reported as normal in three specimens containing 30 to 575 cells. Spinal fluid sugar ranged from 17 to 73 mg. per 100 cc. in 11 specimens and was below 50 mg. per 100 cc. in eight specimens. The Levinson test was negative on four occasions on one patient.

The spinal fluid chloride content was below 600 mg. per 100 cc. in one case, between 600 and 650 mg. in four cases and above 650 mg. in six cases.

Table 5.—Tuberculous Meningitis; 13 cases, 13 deaths. (Guinea pig inoculation listed under "Type")

				ON ADMISSION								SPINAL FLUID ON ADMISSION								COURSE				TREATMENT						
Name	Sex	Race	Age, years	Duration of illness, days	Stiff neck	Kernig's Sign	Coma	Convulsions	Purpura	Temperature	Leukocytes/1000	Cell count	% Polymorphs	Globulin	Sugar, mg. per 100 cc.	Chlorides, mg. per 100 cc.	Smear	Culture	Type	Days fever over 103°F.	Days fever over 100°F.	No. Spinal Taps	Days in hospital	I.M.* Penicillin	I.T.† Penicillin	Sulfadiazine	I.M.* Streptomycin	I.T.† Streptomycin	Serum	Complications and Residuals
JV	M	M	42	3	4+	+	3+	0	0	102	6.9	135	4	+	27	720	+	+	–	3	3	1	3	–	–	–	–	–	–	Died. Autopsy.
RC	M	W	2	3	1+	0	1+	1	0	99.2	24.0	71	0	+	73	736	0	+	0	0	0	15	119	+	–	–	+	–	–	Died.
CR	M	W	23	5	1+	+	0	0	0	100.0	18.0	137	33	+	28	620	0	0	+	0	19	2	19	–	–	–	–	–	–	Died.
DV	M	M	2	3	+	+	1+	+	0	100.4	14.5	30	50	N	63	–	0	–	+	6	6	2	6	+	–	–	–	–	–	Died. Autopsy.
MW	F	W	2	56	?	?	3+	+	0	101.0	–	6	0	+	–	–	–	–	–	0	0	1	1/3	–	–	–	–	–	–	Died. Autopsy.
RD	M	M	1	4	0	0	1+	0	0	99.0	11.1	420	70	+	34	760	–	+	+	67	67	13	67	+	–	+	+	+	–	Died. Autopsy.
EA	M	M	4	7	2+	+	1+	+	0	97.6	27.5	575	82	N	33	580	0	0	+	11	11	7	11	+	–	–	+	+	–	Died. Autopsy.
SG	F	M	4	8	3+	+	1+	0	0	102.0	15.0	110	25	+	30	680	0	0	–	0	4	1	4	–	–	–	–	–	–	Died. Autopsy.
FC	M	M	27	1	0	0	0	0	0	103.4	8.0	2,200	40	+	–	620	0	+	–	12	12	10	12	+	–	+	–	–	–	Died. Autopsy.
SH	F	W	½	21	1+	0	1+	0	0	102.8	28.0	47	6	+	17	680	0	0	–	0	3	1	3	+	–	–	–	–	–	Died. Autopsy.
JM	M	M	2	6	1+	+	0	0	0	101.0	14.7	460	10	+	29	692	+	0	–	10	10	3	10	–	–	+	–	–	–	Died.
GH	F	W	3	1	3+	+	2+	0	0	101.0	11.5	107	15	N	37	600	0	+	–	3	18	11	18	+	+	+	–	–	–	Died. Autopsy.
RC	M	M	4	10	1+	0	1+	0	0	99.4	–	610	30	+	67	600	0	0	–	1	7	1	7	–	–	+	–	–	–	Died. Autopsy.

Table 6.—Meningococcus Meningitis; 12 cases, 1 death.

BB	F	W	3	2	2+	+	1+	0	+	101.2	–	cloudy	90	2+	20	–	+	0		0	9	2	14	+	+	+	–	–	–	No residuals.
LC	M	W	2	6/24	+	+	1+	+	+	103.6	32.0	990	0	–	65	–	+	+		1	14	6	15	+	+	+	–	–	–	No residuals.
JR	M	W	52	12/24	3+	+	1+	0	0	98.8	12.4	12,500	100	–	12	–	+	?		0	0	10	11	+	9	+	–	–	–	No residuals.
SL	F	N	59	3	3+	+	4+	0	+	104.6	38.6	5,600	94	+	13	–	+	0		1	3	7	3	+	7	+	–	–	–	Died. Autopsy.
CA	M	M	27	4	3+	+	2+	0	0	102.2	9.5	900	++	–	–	–	+	+		0	3	10	18	+	3	+	–	–	–	No residuals.
SN	F	W	13	1	+	3+	2+	0	0	103.4	35.0	8,100	100	+	10	–	+	+		1	9	3	15	+	2	+	–	–	–	No residuals.
LG	M	M	4	2	2+	+	1+	0	0	102.0	15.0	30,000	100	+	12	640	+	+		2	22	8	25	+	–	+	–	–	–	No residuals.
SF	F	W	10	2	4+	+	3+	0	+	103.8	–	6,000	95	+	22	–	+	+		1	5	3	11	–	–	+	–	–	–	No residuals.
AE	M	W	68	1	1+	‡	0	0	0	97.8	19.4	1,200	98	+	14	–	+	+		0	0	4	15	–	3	+	–	–	–	No residuals.
GP	M	W	4	1	2+	+	1+	0	0	104.8	21.0	4,000	99	+	43	–	+	+		1	7	3	13	+	+	+	–	–	–	Otitis; no residuals.
RZ	M	W	4	2	3+	+	+	0	+	104.0	29.5	12,000	83	+	38	758	+	+		1	2	3	14	+	–	+	–	–	–	No residuals.
KW	M	W	1½	1½	2+	+	+	0	+	105.0	12.7	12,800	90	–	–	–	+	0		1	0	1	8	+	–	+	–	–	–	No residuals.

Key to symbols used in Tables 5 to 13: N = Normal values. O = None present. + = Test positive or drug given. – = Test not done or drug not given. "D" = Lederle Group "D" pneumococcus, type not identified.

‡ = Blood negative for Western Equine Encephalitis, St. Louis Encephalitis & Mumps * = Intramuscular injection. † = Intrathecal injection.

				ON ADMISSION								SPINAL FLUID ON ADMISSION								COURSE				TREATMENT						
Name	Sex	Race	Age, years	Duration of illness, days	Stiff neck	Kernig's Sign	Coma	Convulsions	Purpura	Temperature	Leukocytes/1000	Cell count	% Polymorphs	Globulin	Sugar, mg. per 100 cc.	Chlorides, mg. per 100 cc.	Smear	Culture	Type	Days fever over 103°F.	Days fever over 100°F.	No. Spinal Taps	Days in hospital	I.M.* Penicillin	I.T.† Penicillin	Sulfadiazine	I.M.* Streptomycin	I.T.† Streptomycin	Serum	Complications and Residuals

Table 7.—H. Influenzae Meningitis; 11 cases, 2 deaths.

Name	Sex	Race	Age, years	Duration of illness, days	Stiff neck	Kernig's Sign	Coma	Convulsions	Purpura	Temperature	Leukocytes/1000	Cell count	% Polymorphs	Globulin	Sugar, mg. per 100 cc.	Chlorides, mg. per 100 cc.	Smear	Culture	Type	Days fever over 103°F.	Days fever over 100°F.	No. Spinal Taps	Days in hospital	I.M.* Penicillin	I.T.† Penicillin	Sulfadiazine	I.M.* Streptomycin	I.T.† Streptomycin	Serum	Complications and Residuals
BO	M	M	4	5	4+	+	3+	0	0	101.8	19.4	2,000	93	+	32	728	+	+	0	2	4	6	18	+	−	+	+	+	−	No residuals.
LB	F	W	3½	2	2+	+	1+	0	0	102.4	21.4	5,100	97	+	32	−	+	+	B	1	2	8	29	+	−	+	+	+	−	Relapse. No residuals.
JR	M	W	5	1	3+	+	4+	1	0	104.0	14.6	7,500	0	+	40	672	+	+	B	1	1	2	½	−	−	+	+	+	+	Died in 12 hrs. Autopsy.
JD	M	W	5/12	4	4+	+	+	0	0	104.8	18.5	5,575	96	+	30	736	+	+	0	1	7	4	27	+	−	+	+	+	−	Fever 15-21st day. No residuals.
DM	M	M	1½	7	1+	+	0	0	0	104 1	12.9	490	78	+	16	−	+	0	B	2	12	11	27	+	−	+	+	+	−	No residuals.
LG	M	W	3	?	2+	+	1+	0	0	103.8	13.6	5,250	98	2+	10	−	+	0	0	1	3	3	13	+	−	+	−	−	+	No residuals.
JD	M	W	1	12/24	1+	‡	1+	0	0	104.0	27.0	1,920	99	+	20	−	+	+	B	1	8	6	15	+	−	+	+	+	−	Otitis. No residuals.
GC	M	W	9/12	12/24	4+	+	1+	0	0	101.0	18.8	6,300	91	1+	28	−	+	+	0	2	3	2	7	+	+	+	−	−	−	Relapse. ? Residuals.
RP	M	W	4	18/24	0	0	2+	0	0	102.4	14 4	5,000	86	2+	19	−	+	0	B	2	10	14	18	+	+	+	−	−	+	No residuals.
CC	F	W	1	12/24	1+	1+	1+	2	0	104.8	−	4,130	92	−	−	−	+	+	B	2	12	10	26	+	−	+	+	−	+	No residuals.
JS	F	M	8/12	7	3+	+	2+	6	+		−	2,640	0	−	10	704	+	+	B	1	1	1	1/3	+	−	+	−	+	−	Died in 8 hrs. Autopsy.

Table 8.—Pneumococcus Meningitis; 6 cases, 1 death.

Name	Sex	Race	Age, years	Duration of illness, days	Stiff neck	Kernig's Sign	Coma	Convulsions	Purpura	Temperature	Leukocytes/1000	Cell count	% Polymorphs	Globulin	Sugar, mg. per 100 cc.	Chlorides, mg. per 100 cc.	Smear	Culture	Type	Days fever over 103°F.	Days fever over 100°F.	No. Spinal Taps	Days in hospital	I.M.* Penicillin	I.T.† Penicillin	Sulfadiazine	I.M.* Streptomycin	I.T.† Streptomycin	Serum	Complications and Residuals
ES	M	W	16	3/4	4+	+	4+	many	0	103.1	31.0	13,800	98	+	27	−	+	+	VI	1	20	16	57	+	2	+	−	−	−	Relapses. Sphenoid Surg.
JC	M	W	1	3/4	4+	+	2+	2	0	104.0	10.1	5,200	95	+	19	−	+	0	VI	2	6	5	10	+	1	+	−	−	−	Otitis media.
RW	M	W	10	1	1+	0	1+	0	0	105.6	22.0	6,570	99	+	72	−	+	+	"D"	1	3	3	11	+	−	+	−	−	−	Nerve deafness.
RB	M	W	10	1/4	1+	0	0	0	0	102.6	18.4	−	97	N	78	−	+	+	XI	1	3	1	7	+	−	+	−	−	−	Encephalocele.
RC	M	N	49	1/8	2+	+	4+	0	0	102.0	20.0	8,700	100	+	93	−	+	0	0	1	1	1	14/24	+	−	+	−	−	−	Died. Autopsy.
WL	M	W	46	1/3	4+	+	4+	0	0	104.0	26.0	8,050	81	+	13	700	+	0	0	3	7	2	7	+	−	+	−	−	−	Otitis; mastoidectomy.

Table 9.—Syphilitic Meningitis; 2 cases, 0 deaths.

Name	Sex	Race	Age, years	Duration of illness, days	Stiff neck	Kernig's Sign	Coma	Convulsions	Purpura	Temperature	Leukocytes/1000	Cell count	% Polymorphs	Globulin	Sugar, mg. per 100 cc.	Chlorides, mg. per 100 cc.	Smear	Culture	Type	Days fever over 103°F.	Days fever over 100°F.	No. Spinal Taps	Days in hospital	I.M.* Penicillin	I.T.† Penicillin	Sulfadiazine	I.M.* Streptomycin	I.T.† Streptomycin	Serum	Complications and Residuals
GS	M	M	25	4	1+	0	4+	0	0	100.0	10.8	551	8	+	69	−	−	−	−	0	0	3	21	+	−	−	−	−	−	No residuals.
JC	F	W	31	5	1+	0	0	0	0	99.2	7.3	−	−	−	128	−	−	−	−	0	0	1	11	+	−	−	−	−	−	No residuals.

Table 10.—Pseudomonas Pyocyaneus Meningitis; 2 cases, 1 death.

Name	Sex	Race	Age, years	Duration of illness, days	Stiff neck	Kernig's Sign	Coma	Convulsions	Purpura	Temperature	Leukocytes/1000	Cell count	% Polymorphs	Globulin	Sugar, mg. per 100 cc.	Chlorides, mg. per 100 cc.	Smear	Culture	Type	Days fever over 103°F.	Days fever over 100°F.	No. Spinal Taps	Days in hospital	I.M.* Penicillin	I.T.† Penicillin	Sulfadiazine	I.M.* Streptomycin	I.T.† Streptomycin	Serum	Complications and Residuals
JM	F	W	3/12	0	0	0	0	0	0	101.0	−	19,000	−	+	16	−	+	+	−	2	2	2	25	−	−	−	−	−	−	Died. Autopsy, Meningocele.
CJ	M	W	25	7	1+	+	0	0	0	100.0	11.2	970	32	N	35	−	+	+	−	0	2	9	12	+	−	+	−	−	−	No residuals.

Table 11.—Staphylococcus Meningitis; 2 cases 0 deaths.

Name	Sex	Race	Age, years	Duration of illness, days	Stiff neck	Kernig's Sign	Coma	Convulsions	Purpura	Temperature	Leukocytes/1000	Cell count	% Polymorphs	Globulin	Sugar, mg. per 100 cc.	Chlorides, mg. per 100 cc.	Smear	Culture	Type	Days fever over 103°F.	Days fever over 100°F.	No. Spinal Taps	Days in hospital	I.M.* Penicillin	I.T.† Penicillin	Sulfadiazine	I.M.* Streptomycin	I.T.† Streptomycin	Serum	Complications and Residuals
JD	M	W	11/12	14	2+	+	0	0	0	103.0	15.6	2,300	70	+	68	−	+	+	−	10	26	10	27	+	−	+	+	+	−	No residuals.
CC	M	W	41	5	1+	0	2+	0	0	102.0	19.2	1,500	40	4+	−	−	+	+	−	0	31	5	40	+	+	+	−	−	−	Old osteomyelitis. No residuals.

Table 12.—Unclassified Meningitis; 22 cases, 5 deaths.

				ON ADMISSION								SPINAL FLUID ON ADMISSION								COURSE				TREATMENT						
Name	Sex	Race	Age, years	Duration of illness, days	Stiff neck	Kernig's Sign	Coma	Convulsions	Purpura	Temperature	Leukocytes/1000	Cell count	% Polymorphs	Globulin	Sugar, mg. per 100 cc.	Chlorides, mg. per 100 cc.	Smear	Culture	Type	Days fever over 103°F.	Days fever over 100°F.	No. Spinal Taps	Days in hospital	I.M.* Penicillin	I.T.† Penicillin	Sulfadiazine	I.M.* Streptomycin	I.T.† Streptomycin	Serum	Complications and Residuals
RS	F	N	10	3	1+	0	0	0	0	101.0	20.2	8,300	98	++	12	—	+	0	—	14	20	14	49	+	—	+	—	—	—	Ptosis eyelid.
CT	F	W	7	1	1+	+	1+	0	0	103.6	12.8	4,500	67	+	28	—	0	0	—	1	1	2	12	+	—	+	—	—	—	No resid. ? Meningococcus.
EZ	M	W	66	1+	1+	+	3+	0	0	104.4	17.0	9,100	92	+	42	—	0	0	—	5	6	4	16	+	—	+	—	—	—	Otitis. No resid. ? Pneumococcus.
HG	M	W	34	21	2+	+	‡	0	0	100.0	15.2	2,300	43	—	—	—	0	0	—	0	4	3	10	+	3	+	—	—	—	No residuals.
CO	M	N	35	14	3+	+	3+	0	0	102.2	—	1,240	36	+	62	—	0	0	—	2	2	2	2	+	—	+	—	—	—	Transferred. ? Tbc.
RN	M	W	4	5	1+	+	1+	0	0	103.0	14.3	1,490	90	+	64	—	0	0	—	1	3	5	16	+	—	+	—	—	—	No residuals.
MF	F	M	4	?	1+	+	4+	0	+	105.6	—	—	—	—	—	—	—	—	—	1	1	1	1/6	+	—	+	—	—	—	Died. Autopsy. ? Meningococcus.
CH	M	M	26	6	1+	0	0	0	0	100.6	9.4	1,250	86	+	59	—	0	0	—	0	1	2	13	—	—	+	—	—	—	Albuminuria.
SH	F	W	2	1	2+	+	2+	0	+	104.2	38.4	10	0	—	—	—	0	0	—	1	8	1	20	+	—	+	—	—	—	Skin sloughs. ? Meningococcus.
GL	M	W	9	2	1+	+	1+	0	0	101.0	8.2	850	60	+	84	680	0	0	—	0	3	2	9	+	—	+	—	—	—	No residuals.
DJ	M	W	7	1½	0	0	0	0	0	102.2	9.8	322	76	N	45	700	0	0	—	2	6	5	18	+	—	+	—	—	—	No residuals.
VR	M	W	76	?	1+	+	4+	0	0	100.0	11.2	725	34	+	35	—	0	0	—	0	8	1	8	+	—	+	—	—	—	Died. Autopsy. "Meningitis."
CH	F	W	5	3/4	0	0	0	0	0	101.0	8.0	560	89	—	59	—	0	0	—	0	3	3	12	+	—	+	—	—	—	No residuals.
RG	M	M	7/12	7	0	0	0	+	0	100.6	12.5	130	15	N	10	—	0	0	—	0	24	6	24	+	—	+	—	—	—	Died. ? Tbc.
JU	M	W	30	1½	1+	+	1+	0	0	101.4	22.2	800	100	+	—	—	+	0	—	0	2	4	10	+	+	+	—	—	—	No residuals.
NT	M	W	7	1	1+	+	1+	0	+	102.2	10.2	+	?	N	71	—	0	0	—	0	1	1	6	+	—	+	—	—	—	No residuals.
RP	M	W	14	2	1+	0	0	0	0	99.4	.9.1	50	20	N	40	620	0	0	—	0	0	3	14	+	—	—	—	—	—	No residuals. ? Virus.
SK	F	M	21	3	1+	+	0	0	0	100.8	9.9	82	3	N	79	—	0	0	—	0	3	1	11	+	—	+	—	—	—	No residuals. ? Virus.
DP	M	W	4/12	1	1+	0	0	0	0	105.8	22.8	40	100	N	73	776	0	0	—	2	3	3	10	+	—	+	—	—	—	No residuals.
RN	M	W	25	4	1+	0	0	0	0	101.0	10.4	42	75	—	—	—	0	0	—	0	1	2	5	+	—	+	—	—	—	No residuals.
PS	F	M	3½	14	3+	+	1+	0	0	99.4	14.5	200	10	+	43	696	0	0	—	0	0	1	4	—	—	—	—	—	—	Died. ? Tbc.
DS	M	M	9/12	7	0	0	1+	0	0	99.6	15 3	112	66	+	49	620	0	0	—	0	5	3	5	+	3	—	—	—	—	Died. ? Tbc.

Table 13.—(?) Lymphocytic Choriomeningitis; 4 cases, 0 deaths.

AM	F	M	13	4	1+	0	0	0	0	101.2	10.3	400	90	+	65	700	0	0	‡	2	7	6	18	0	0	—	—	—	—	No residuals.
PW	F	W	13	3	0	0	0	0	0	99.0	5.7	50	0	N	84	728	0	0	‡	0	0	1	14	0	0	—	—	—	—	No residuals.
SM	F	W	6	4	0	0	0	0	0	102.0	6.4	25	1	N	58	704	0	0	‡	0	2	3	14	0	0	—	—	—	—	No residuals.
RS	M	W	13	1	1+	+	0	0	0	101.0	7.0	20	0	N	55	728	0	0	‡	0	1	2	4	+	+	—	—	—	—	No residuals.

The diagnosis was established by the stained smear of spinal fluid sediment or pellicle in two cases, by culture in five additional cases and by guinea pig inoculation in four cases. Postmortem examination proved the diagnosis in the rest.

Three patients received streptomycin with some apparent temporary benefit, but later the disease progressed in spite of continued treatment.

Four patients in whom the diagnosis was obscure received standard penicillin treatment ranging from 960,000 units to 6,700,000 units. Two others received a few doses of penicillin, but medication was stopped on the basis of a clinical diagnosis of tuberculous meningitis unsupported by laboratory findings. Four of the penicillin-treated patients and two others received sulfadiazine.

Ten patients came to autopsy. In only four of these had diagnosis been made from laboratory data on specimens obtained during life, and in two of these the results of guinea pig inoculation and culture were reported after the death of the patients.

N. Meningococcus Meningitis

Twelve bacteriologically proved cases of meningococcus meningitis were treated, with death of one patient, as indicated in Table 6. Eight of the patients were males, three were three years of age or under, five more were 16 years of age or under and three were over 50 years of age. Two patients were of Mexican origin and one was a Negro.

Two patients had been ill three days or more. All had stiffness of the neck, a positive Kernig's sign and at least some dulling of consciousness on admission; only one was deeply comatose. Six had purpura, which was pronounced in one. Only one had had convulsions and none had evidence of a focal central nervous system lesion. One had a purulent otitis media; no other foci were noted.

The lowest temperature on admission was 97.8° F. in a patient with a leukocyte count of 19,450 and 1,200 cells in the spinal fluid. The highest temperature was 105° F. and in seven the temperature was over 103° F.

The leukocyte count was sometimes deferred until treatment was well under way; in six cases, however, it exceeded 20,000 on admission.

The spinal fluid cell count ranged from 900 to 30,000, with over 90 per cent polymorphonuclear cells, save in one case with 990 cells which were reported as large mononuclears.

The globulin was increased in eight cases. The spinal fluid sugar exceeded 45 mg. per 100 cc. in only one case, ranging from 12 to 65 mg. per 100 cc.

The spinal fluid was found to contain typical Gram-negative diplococci in every case; the culture was positive in eight of the twelve cases.

Sulfadiazine was given in standard doses in all cases, and penicillin in ten cases. Intrathecal penicillin in doses of 20,000 units was given to eight patients; one patient received seven doses and another nine. Routine supportive treatment was used as indicated.

Only the patient with a spinal fluid cell count of 30,000 maintained a temperature over 103° F. for two days; he and three others exceeded 100° F. for from nine to 22 days, and he was the only patient to remain in the hospital over 18 days. The average stay was 13 days.

Repeated spinal fluid examinations were made on nine patients. Three patients had cell counts of less than 15 on the eighth, thirteenth and sixteenth hospital days; two of these had received intrathecal penicillin. Three patients had cell counts of 400, 106 and 410 on the seventh, ninth and tenth hospital days respectively; two of these had received intrathecal penicillin and all were asymptomatic at the time.

No residual effects were noted on discharge.

H. Influenzae Meningitis

Eleven patients with bacteriologically proved cases of H. influenzae meningitis were treated as indicated in Table 7. Two patients died, eight and twelve hours after admission. Eight patients were males. The oldest was five years of age and the youngest eight months. Three were of Mexican parentage.

Four had been ill 18 hours or less and three had been ill five days or more. All but one patient had stiffness of the neck and a positive Kernig's sign. Only one was deeply comatose. One had a rash not regarded as purpuric. Three had had convulsions and two had clear-cut evidence of a focal central nervous system lesion on admission. One patient had purulent otitis media on admission; no other foci were noted.

The lowest temperature on admission was 101° F.; six patients had a temperature over 103.8° F.

The leukocyte count in nine cases ranged from 12,900 to 27,000.

The spinal fluid cell count ranged from 490 to 7,500; it was below 2,000 in only two cases. In two cases all the cells were reported to be lymphocytes and the cell counts were 2,640 and 7,500. Other differential counts showed 78 per cent to 99 per cent polymorphonuclear cells.

The globulin content in the spinal fluid was above normal in nine cases. The spinal fluid sugar did not exceed 40 mg. per 100 cc. and was 10 mg. per 100 cc. in two instances.

Organisms morphologically resembling H. influenzae were found in the spinal fluid smear in each case, and the organisms from seven of the patients showed capsular swelling with Type "B" H. influenzae serum. Spinal fluid cultures were sterile in three of the 11 patients.

Sulfadiazine was given in standard doses to all. Penicillin was given to all but one patient and was given intrathecally to one patient.

Streptomycin was given intramuscularly in varying doses and intrathecally in 25 to 50 mg. amounts to ten patients.

Anti-Hemophilus influenzae Type "B" serum was given to four patients.

Fever over 103° F. lasted one day in four patients and two days in five patients; fever fell below 100° F. in two to twelve days with an average of seven days.

Three patients had secondary febrile episodes, and in two cases these were accompanied by an exacerbation of meningeal signs.

Spinal fluid examinations on six patients on the fifth, seventh, tenth, sixteenth, twentieth and twenty-fourth hospital days showed cell counts ranging from zero to 44 cells.

No residual neurological defects were noted on discharge. The hospital stay ranged from seven to 29 days and averaged 20 days.

Pneumococcal Meningitis

Six patients with bacteriologically proved pneumococcal meningitis were treated as indicated in Table 8. All were males. Their ages ranged from one to 49 years. One was a Negro. One patient died 14 hours after admission.

The two adults had been ill for three to seven days; the children less than 24 hours. All had stiff neck. Three were deeply comatose; one was mentally clear. Two had had convulsions. None had purpura.

The temperature on admission ranged from 102° F. to 105.6° F.

The leukocyte count varied from 10,100 to 31,000.

The spinal fluid cell count in five cases varied from 5,200 to 13,800 and in the sixth case was "purulent." Polymorphonuclear cells exceeded 81 per cent in all specimens. The globulin was increased in five and normal in one. The spinal fluid sugar content was normal in three and between 13 and 27 mg. per 100 cc. in three.

The pneumococcus was identified morphologically in all cases and was typed directly from the spinal fluid in three cases. Two patients showed Type VI and one Type XI pneumococcus. Pneumococci cultured from patient R. W. (Table 5) could not be typed beyond "group D," comprising Types X, XI, XIII, XX, XXII and XXIV.

Penicillin and sulfadiazine were given in all cases.

One patient had an encephalocele which was unrecognized through three bouts of meningitis. He has been well since receiving appropriate neurosurgical treatment.

One patient had long standing purulent otitis media. He recovered promptly from a very severe pneumococcal meningitis, but before submitting to radical mastoidectomy had two more bouts of meningitis.

One patient entered with signs of acute otitis media in addition to meningitis. The otitis and the meningitis cleared promptly on routine therapy but eight severe relapses occurred in the subsequent 41 days before the sphenoid sinus was opened. Recovery was then uneventful and the patient was discharged on the 57th day with slight residual VIII and XI cranial nerve impairment.

One patient entering with acute otitis media required only medical management.

Staphylococcal Meningitis

The incidence of streptococcal and staphylococcal meningeal infections here reported is essentially that of cryptogenic infections in which the primary focus was not found on admission. Patients in whom meningeal infections develop secondary to trauma, ear and sinus infections, bacteremia due to distant foci of acute or chronic infection and patients with terminal cachexia and bacteremia are not generally given a primary diagnosis of meningitis and their records therefore are not available for review. Since such cases rarely present a diagnostic problem and since treatment and prognosis are essentially those of the underlying disease, this defect in coverage is not of great significance.

Only two proved cases of staphylococcal meningitis were reported. One occurred in a man 41 years of age with supposedly inactive osteomyelitis of 15 years' duration. He had stiffness of the neck, a temperature of 102° F., a leukocyte count of 19,250 and spinal fluid pleocytosis of 1,500 with 40 per cent polymorphonuclear cells. The smear and culture showed staphylococci. An epidural abscess developed and the patient recovered after drainage and 17 days of treatment with penicillin and sulfadiazine.

A boy 11 months of age was admitted with a history of stiffness of the neck for 14 days. The temperature was 103° F., the leukocyte count 15,600. The spinal fluid contained 2,300 cells and the smear and culture showed staphylococci. No focus of infection was demonstrated. The patient recovered after receiving 100,000 units of penicillin every three hours for 27 days, various sulfonamides for 17 days and streptomycin for two days.

Pseudomonas Pyocyaneus Meningitis

A man 25 years of age was found to have pseudomonas pyocyaneus meningitis when he complained of headache of seven days' duration and was admitted to the hospital with stiff neck and a temperature of 100° F. The leukocyte count was 11,200, and 970 leukocytes were found in the spinal fluid. The patient was afebrile on the third day of 12 days of treatment with penicillin, 20,000 units every three hours, and sulfadiazine.

A three-month-old infant with multiple congenital deformities which included a meningocele developed pseudomonas pyocyaneus meningitis and died. Only supportive treatment was given.

Syphilitic Meningitis

Two patients with syphilitic meningitis were observed. Both responded immediately to treatment with penicillin.

Virus Infections

Virus diseases (Table 3) are included in this report to serve as an index of the diagnostic difficulties to be encountered in evaluating meningeal signs, rather than for individual consideration. Chart 1 contrasts the incidence of poliomyelitis and epidemic meningitis in California and San Bernardino County. Chart 2 indicates the seasonal incidence of these diseases in this series.

The incidence of epidemic meningococcal meningitis, as reported, generally includes many questionable cases diagnosed on clinical grounds alone;

reported cases of poliomyelitis are even less subject to critical evaluation.

From July 1, 1940, to July 1, 1948, the staff of the San Bernardino County Charity Hospital treated 102 patients with poliomyelitis with six deaths, and 43 patients with encephalitis with nine deaths.

Between August 28, 1947 and January 16, 1948, a clinical diagnosis of lymphocytic choriomeningitis was made in four children aged six to 13 years. Blood specimens sent to the State Department of Health were reported as negative for western equine encephalitis, St. Louis encephalitis and mumps. Symptoms were of one to four days' duration, with stiff neck in two cases and a temperature from 99° F. to 102° F. The leukocyte count ranged from 5,700 to 10,300. In three cases the spinal fluid contained 20 to 50 cells per cu. mm., all lymphocytes; the globulin, sugar and chloride contents were normal. In a fourth case the spinal fluid cell count was 400 with 90 per cent polymorphonuclear cells and an increase in globulin. All the patients were asymptomatic in one to five days. Only one received penicillin. The accuracy of the diagnosis is open to question.

Unclassified Meningitis

There were 22 cases in which meningeal signs, symptoms and spinal fluid abnormalities were observed but no infecting organism was identified. Five of the patients died and autopsies were done on two.

(a) Four of the 22 patients probably had tuberculous meningitis. One of them had known tuberculosis of the bone; one, an infant, had been exposed to tuberculosis; one was transferred to a Veterans Administration hospital in a serious condition after two days and had obvious advanced pulmonary lesions, and the fourth died in 24 days after a typical course. Permission for autopsy was refused in three cases and no report was obtained regarding the fate of the patient transferred to the Veterans Administration hospital.

(b) Four patients presented a picture highly suggestive of meningococcal meningitis. One, M. F. (Table 5) died in four hours. The others responded promptly to treatment and recovered without residual effects. The patient who died and one other, S. H., had petechial skin lesions.

(c) Two patients included in this group probably did not have bacterial meningitis. Both had a brief illness, a temperature under 101° F., a normal leukocyte count, and spinal fluid cell counts of 50 and 82 with polymorphonuclear percentages of 20 and 3 per cent, respectively. One received penicillin for 24 hours and was discharged in 14 days. The virus unit of the State Department of Public Health reported two specimens negative for lymphocytic choriomeningitis. The other patient had received penicillin prior to admission, was given only sulfadiazine for seven days and was discharged well in 11 days.

(d) Two patients had significant complicating diseases:

A girl of ten years had Class IIC rheumatic heart disease which so complicated the illness as to make evaluation of the meningeal components impossible; she was discharged improved on the 49th day.

One man, aged 76, had a spinal fluid cell count of 725 on admission, but his death on the eighth day was largely due to nephrosclerosis and age. Meningeal signs had abated.

(e) Four patients had moderately severe acute illnesses antedating admission by one to six days. Three were males. One was a Mexican. The ages were four, 26, 34 and 66 years. Each had a stiff neck; three were not mentally clear. The admission temperature ranged from 100° F. to 104.4° F. The leukocyte count varied from 9,400 to 17,000; the spinal fluid cell count from 1,250 to 9,100. Polymorphonuclear cells made up 43 per cent of the count in one case and exceeded 86 per cent in the remainder. The globulin was increased in three. The spinal fluid sugar was 42 mg. per cent in one case and normal in two. No organisms were identified on smear or culture of the spinal fluid.

Three patients were given penicillin and one of these received intrathecal penicillin three times. All four were given standard doses of sulfadiazine.

One patient (aged 66) had a temperature over 103° F. for five days but was discharged well in 16 days. Three patients were afebrile in three days and were discharged well in ten to 16 days.

The clinical course of this group was indistinguishable from that of proved cases of meningococcal and uncomplicated pneumococcal meningitis.

(f) The remaining six patients had relatively mild illnesses antedating admission by one to four days. Stiff neck was mild in four and absent in two. Only two showed any clouding of consciousness. Age ranged from four months to 30 years. Five were males and all were white. The infant four months old had a temperature of 105.8° F. on admission; the temperatures of the others were below 102.2° F.

The leukocyte count was under 10,400 in four cases and over 22,000 in the other two. The spinal fluid cell count was under 1,000 in all, with 60 per cent to 100 per cent polymorphonuclear cells. The globulin was elevated in only two cases, and the spinal fluid sugar exceeded 40 mg. per 100 cc. in all, and was normal in four cases. No organisms were found on spinal fluid smear or culture.

All received penicillin and sulfadiazine and all were afebrile in one to six days. The illness was of lesser severity than in those groups previously discussed and there were no complications or sequelae.

DISCUSSION

An increase in the number of cases of "unclassified" meningitis was noted after penicillin first became freely available in 1946. It can be assumed that in many instances this was due to the rapid sterilization of the spinal fluid which limited the laboratory to one specimen of diagnostic value.

Accepted treatment schedules [1,8,9] for the several bacterial meningitides are perhaps not as rigid as in the days when serum was used exclusively in the pneumococcal, meningococcal and influenzal infections. Nevertheless, uncertainty in the presence of the symptoms of meningitis usually results in the use of some combination of penicillin, the sulfonamides and streptomycin at great cost and some risk, but may, contrariwise, lead to dangerously small doses and ineffective treatment.

Most reviews of the bacterial meningitis problem[3,5,9] indicate a much higher proportion of meningococcal infections than was found in this series. Table 4 indicates that at the Cook County Hospital between 1943 and 1945, 74 per cent of the cases of bacterial meningitis were due to the meningococcus, while at the San Bernardino County Charity Hospital between 1940 and 1945 only 40 per cent were due to the meningococcus and between 1945 and 1948 only 17 per cent were due to this organism.

From the standpoint of meningeal diseases as a whole, including both the virus and the bacterial infections, the incidence, or, to put it another way, the odds for a given diagnosis faced by the clinician and the laboratory are indicated by the following data concerning the 144 patients with meningeal signs observed at the San Bernardino County Charity Hospital since 1945:

1. 51 per cent had clinical and laboratory findings consistent with a diagnosis of a virus infection. The risk and expense of antibiotic therapy were to be avoided.
2. 9 per cent had proved tuberculous meningitis, but because early conclusive proof of diagnosis was lacking, seven of these 15 patients received penicillin.
3. 8 per cent had proved H. influenzae meningitis which required early specialized treatment with streptomycin and/or serum.
4. 4 per cent had proved pneumococcal meningitis, which in spite of energetic antibiotic therapy is notorious for complications necessitating surgical treatment.[4,10]
5. 8 per cent had proved meningococcal meningitis which could be expected to respond ideally to sulfonamides alone[8] without the added cost and risk of penicillin.
6. 15 per cent had unclassified meningitis. Antibiotics were used empirically at considerable expense and some risk.

The assumption that all fulminant bacteremic cases of meningitis of unproved cause were due to the meningococcus[3,9] would, in our series, have been unsound from the epidemiological standpoint and confusing in the evaluation of therapy. Of nine patients who had purpura, six had a proved meningococcus infection, one had a proved H. influenzae infection and in two the infecting agent was unclassified.

No outstanding clinical or laboratory characteristics served to distinguish one type of meningitis from another, yet the diagnostic accuracy was surprisingly good. In no case in which the patient was diagnosed and treated as having a virus infection did bacterial meningitis develop. In the entire group of 70 patients discharged with a diagnosis of bacterial meningitis, the presence of a purulent spinal fluid was demonstrated on entry in 69; meningeal signs developed in one patient on the third hospital day and the diagnosis was then established.

Autopsies were done in 17 (74 per cent) of the 23 cases of fatal bacterial meningitis. A diagnosis of tuberculous meningitis rested on pathological sections alone in four of ten cases in which autopsy was done. In two cases, postmortem examination of the embalmed body afforded no better diagnosis than "purulent leptomeningitis."

The management of the bacterial meningitides in this series was generally found to have followed standard practices. Penicillin was used more frequently and in larger doses than has been recommended.[6,8,9] Sulfadiazine administered intravenously was given less frequently on admission than the described condition of the patient would seem to require, and the amount given was usually small.

Repeated spinal fluid examinations were the rule. They were more often done as a guide to therapy or to relieve signs of increased pressure than because of any theories regarding drainage.

Penicillin was given intrathecally to 23 patients without any striking results. Current practice[6] in San Bernardino County Charity Hospital limits use of the drug to pneumococcal, streptococcal and staphylococcal meningitis. There is at present a divergence of opinion among the staff members as to the place of intrathecal treatment in meningitis, and this accounts for the various treatment programs here recorded. Apparently the views of Hoyne[8] are gaining ground. It is anticipated that intrathecal penicillin and streptomycin will be abandoned as was the intrathecal use of serum and the sulfonamides.

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The Pathology of the Nodular Goiter

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SUMMARY

Pathologic studies of thyroid nodules indicate that a definite percentage of nodular goiters are malignant, and that an even higher percentage are true neoplasms. Malignant tumors may arise from adenomas, involutionary nodules or possibly from nodules of the unclassified type. Some carcinomas of the thyroid gland are undoubtedly malignant processes from the start. Because of the high incidence of neoplasms, benign and malignant, in a group of single nodules of the thyroid gland, the presence of such nodules should warrant radical resections of the involved lobe and adjacent isthmus. The high incidence of epithelial growth activity in nodular involutionary goiters may revise the accepted practice of removing non-toxic nodular goiters only when clinical evidence of growth or local pressure is present.

A VARIETY of pathologic processes in the thyroid gland may produce nodular enlargement or goiter. In studies of three series of patients with nodular goiter,[1, 2, 4] a classification of these nodules was proposed. Nodular goiters fall into four general groups: (a) involutionary nodules, (b) neoplasms, benign and malignant, (c) unclassified nodules, (d) miscellaneous nodules, including cysts and thyroiditis nodules.

As has been shown by Reinhoff and Lewis,[3] involutionary nodules originate as focal areas of hyperinvolution in a hyperplastic gland. Usually this hyperplasia is not associated with hyperthyroidism. It is cyclic and seems to be associated with demands upon the thyroid gland for thyroid hormone, especially in the female during pregnancy, lactation and the menopause. In the beginning, these involutionary nodules are small. They are composed of enlarged alveoli which are filled with colloid. As they enlarge further, they compress the surrounding thyroid glandular tissue, cause atrophy of its epithelial elements and compress the supporting stroma so as to produce a fibrous capsule. These nodules generally are called adenomas, but since they have their origin in an irregular hyperinvolutionary process, they should not be considered as true neoplasms.

Once the involutionary nodule forms, it may enlarge greatly over a period of years by a number of pathologic processes. The epithelium of the original alveoli forming the nodule frequently proliferates so that the individual alveoli may become larger, or this growth may be associated with considerable papillary infolding of the acinar lining cells. The storage of increasing amounts of colloid in these large acini plays a considerable part in enlargement of these involutionary nodules. There is often considerable epithelial proliferation between the larger original alveoli, and generally this occurs near the central portion of the nodule. This proliferating epithelium tends to form small fetal-size acini which in time differentiate to form larger acini which approch the normal in size.

This epithelial growth takes place in two ways. The original acini appear to form external buds which become pinched off to form additional small acini. At times the proliferating epithelium grows as long solid cords which later segment, develop lumens and thus form rows of new small aveoli. This secondary epithelial proliferation in an involutionary nodule may be one source of an epithelial neoplasm in the thyroid gland.[2]

Involutionary nodules often increase in size because of hemorrhage within them. Fibrosis and calcification, the result of hemorrhage or degenerative changes, are not infrequently seen in involutionary nodules. Often the alveolar walls between the large acini degenerate, probably due to vascular compression. In this way, large colloid-filled cysts are often formed. As the nodule enlarges, the veins in the capsule draining the nodule become compressed. Increased venous pressure within the nodule leads then to escape of fluid into the supporting connective tissue. This edema separates both large and small acini and contributes further to the enlargement of the involutionary nodule. Generally, involutionary nodules are multiple, but they may occur singly as well.[1, 4] Involutionary nodules generally show a high colloid content, but in gross appearance they vary considerably, depending upon the extent of the secondary processes.

Epithelial neoplasms of the thyroid gland have been classified by Warren.[5] The adenomas or benign epithelial tumors of the thyroid gland have been placed into four groups: embryonal, fetal, simple and colloid. This classification depends upon the presence and size of alveoli formed in the neoplasm. Thus the embryonal adenoma is composed of sheets of epithelial cells without alveolar differentiation. The fetal adenomas are composed of small fetal-sized acini, at times containing colloid. The simple adenoma consists of acini approaching the normal in size, and colloid adenomas consist of large acini which are well-filled with colloid. In Warren's[5] experience each type of adenoma presented a uniform histologic pattern. In the pathologic material from

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the thyroid clinic at the University of California Hospital, adenomas almost always had a variable histologic pattern in which the tissue near the center of the nodule was more differentiated than that of the periphery. Presumably the most recent growth took place at the periphery. As the tissue became older it underwent acinar differentiation nearer the central portions of the nodule. No colloid adenomas were found and it was felt that such nodules were probably involutionary in origin.

Adenomas are characterized by uniform cells and nuclei. The nuclear chromatin content is not abnormal and mitoses are not numerous. In some nodules the cells had abundant eosinophilic cytoplasm, and these were considered to be Hurthle cells. Adenomas are circumscribed and encapsulated. They usually have an ovoid outline and have a distinct capsule. The adjacent glandular tissue is compressed and atrophic. The cut surface of the adenoma bulges and has a characteristic pinkish-tan color and is glistening, moist and homogeneous. Hemorrhagic changes and edema are not infrequently seen.

Nodules classified as invasive adenomas have the cellular pattern of a benign glandular neoplasm. The tissue of these nodules, however, infiltrates the adjacent gland. Occasionally there is some histologic evidence of capsular restraint. Since the usual cellular criteria of malignancy are absent, these nodules are not classified as carcinoma, although they are locally invasive.

Some thyroid neoplasms classified as malignant adenomas present the histologic criteria of malignancy including nuclear hyperchromatism, pleomorphism and abundant mitoses. These nodules show no demonstrable invasion and are contained within an intact capsule. In gross appearance they do not differ from adenoma.

Carcinoma of the thyroid gland may arise in a previously benign adenoma or may originate in an involutionary or unclassified nodule. On the other hand some carcinomas of the thyroid gland appear to originate as a malignant process. Often the neoplasm is so extensive when examined pathologically that its origin cannot be accurately determined. The gross appearance of the carcinomatous nodule varies with its neoplastic pattern. The more differentiated carcinomas, especially those arising in preexisting involutionary or neoplastic nodules, tend to resemble closely the nodular processes from which they arose. Carcinomas, however, grossly differ from the benign tumors in that the tissue is usually more variegated, and necrotic, fibrotic and hemorrhagic changes are often present.

The wide variety of histologic patterns and the degree of differentiation of malignant thyroid tumors is the basis of the classification proposed by Warren.[5] Group I includes carcinomas which are well differentiated and in which widespread neoplastic extension has not occurred. Group II contains more rapidly growing thyroid neoplasms which are considered to be of moderate malignancy. Group III includes the anaplastic, rapidly growing thyroid carcinomas. It has been shown that patients with tumors of this classification have a relatively short survival period.[2]

It should be noted that some thyroid carcinomas are surprisingly small. They may measure less than 0.5 cm. in diameter and may not be palpable in the thyroid gland. These small primary neoplasms may give rise to bulky metastatic masses in the cervical lymph nodes, skeleton or other tissues. Some patients with thyroid carcinomas, particularly of the papillary type, have a long survival period even with pulmonary, lymphatic or skeletal metastases.[2]

In pathologic studies of nodular goiter in two series of patients[1, 4] it was found that certain nodules could not be accurately classified as to an involutionary or neoplastic origin. These nodules were placed in an unclassified group, as has been noted. Involutionary nodules often are characterized by considerable secondary proliferation of small acinar structures, generally near the central portion of the nodule. On the other hand, adenomas usually show acinar differentiation with formation of larger acini toward the center of the nodule. In both instances, however, the location of this secondary proliferation in the involutionary nodule or the acinar differentiation in the adenoma may be variable. Thus in some glands the secondary proliferative or differentiating processes are widespread, and the origin of the nodule becomes obscure. It is important to point out, however, that these unclassified nodules are present for a shorter time before producing symptoms than any other nodules except carcinomas.[4] They produce a history of relatively rapid growth, and therefore should be considered as possible precursors of malignancy.

Miscellaneous nodules of the thyroid gland include cysts, intracystic papillomas and nodular masses of tissue presenting the characteristics of chronic thyroiditis. Most cysts probably are of involutionary origin, but occasionally no viable tissue can be found within the capsule, and the origin cannot be determined. Intracystic papillomas are rare. There are indications that some of these may be of involutionary origin, and furthermore that there may be a relationship between them and papillary neoplasms of the thyroid. Generally the nodules seen in glands showing chronic thyroiditis are either definitely involutionary or neoplastic in origin. Occasionally the nodules have the same histologic pattern as the adjacent gland.

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Therapeutic Problems of Non-Toxic Nodular Goiter

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SUMMARY

The crucial point regarding non-toxic nodular goiter is the early diagnosis of neoplasm. A neoplasm may be suspected if a nodular goiter has shown recent growth with the concurrent appearance of pressure symptoms, if it is found in a patient under the age of 20, if vocal cord paralysis is present, or emphatically, if a solitary nodule is discovered. Such non-toxic nodular goiters should be promptly removed regardless of the presence or absence of pressure symptoms. If significant pressure symptoms are present, this in itself is an adequate reason for thyroidectomy.

THE purpose of this presentation is to define and evaluate the significant facts obtained by clinical examination and laboratory tests, which aid in arriving at a precise diagnosis of non-toxic goiter harboring involutionary or neoplastic nodules and to a lesser degree nodules associated with thyroiditis.

Involutionary nodules are formed in the thyroid by a cyclic hyperplasia and involution, especially if a relative lack of iodine is present. The need for iodine seems enhanced by the menarche, pregnancy, the menopause, some infections, certain drugs, and, as Astwood[2] has demonstrated, various vegetables, such as rutabagas. These involutionary nodules, which are in no sense neoplasms, occur approximately seven times as frequently among women as men, are rare under the age of 20, and may grow or degenerate in various ways. Patients with this type of goiter usually have resided in endemic areas and quite frequently give a history of goiter in other family members (Table 1). In involutionary goiters there are usually multiple nodules, and their usual firm consistency may be altered by hemorrhagic or calcific degeneration, or cyst formation within a nodule.

Although non-toxic nodular goiters occur more frequently in females than males, they are more likely to be neoplastic in males than in females. Ward[8] reported malignancy in a ratio of one case in 44 among females, one in 17 among males.

Unlike involutionary nodules, neoplastic nodules are far from rare under the age of 20. A family history of goiter and residence in an endemic area are somewhat less frequent among patients with neoplastic nodules than among those in whom the nodules are of involutionary type. Neoplastic goiters, on the average, are present a shorter period before discovery than involutionary goiters. However, a goiter which has been present several years may be malignant, since some tumors are exceedingly slow-growing, and carcinoma may develop in a long-standing involutionary goiter.

The nodules, or apparent nodules, associated with thyroiditis may occur at any age. Pain and tenderness are often present in the nodule. New nodules may rapidly appear as the inflammatory process extends to other areas of the gland, while the older nodules may recede in size concurrently with a pronounced decrease in local tenderness.

The symptoms associated with non-toxic nodular goiters, exclusive of thyroiditis, are due to pressure upon or displacement of neighboring structures. In order of commonness they are: local sense of fullness, dysphagia, dyspnea, hoarseness, and cough. Such symptoms may be absent if a nodule is small or is situated in the upper pole of the gland.

Distinctions between the types of pressure symptoms are of no aid in the differential diagnosis of non-toxic nodular goiter. It has often been stated that hoarseness is highly suggestive of neoplastic goiter. However, in the author's experience, an equal number (essentially one-quarter) of both carcinomatous and involutionary goiters are associated with hoarseness. But, among patients who had hoarseness, recurrent laryngeal palsy was present in three-fourths of those with malignant goiters and only in one-tenth of those having the involutionary type. Tracheal compression and displacement are the usual causes of the hoarseness associated with involutionary goiters.

Involutionary goiters may enlarge due to cyst formation, proliferation of the acinar elements, or degenerative changes, but a history of recent growth

TABLE 1.—*Data on Age and Sex Incidence of Various Types of Goiter and Incidence of Salent Facts in Histories of Patients.*

	Type of Goiter		
	Involutionary	Benign Adenoma	Carcinoma
Total cases	72	18	90
Sex:			
Male	7 (10%)	2 (11%)	16 (18%)
Female	65 (90%)	16 (89%)	74 (82%)
Cases under age 20	0	3 (17%)	17 (19%)
Residence in Endemic Area	56 (77%)	14 (77%)	26 (29%)
Family History of Goiter	34 (47%)	10 (55%)	10 (11%)
Growth	31 (43%)	12 (66%)	45 (50%)

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is suggestive of neoplasm. Enlargement is all the more noteworthy if associated with the concurrent appearance of pressure symptoms.

The consistency of the goiter to palpation is of only moderate importance in differential diagnosis, for involutionary goiters may be quite firm due to degenerative changes, while the neoplastic thyroid may be relatively soft and rubbery. Fibrotic thyroiditis may cause pronounced hardness in the gland. Certainly the traditional description of "stony" is not appropriate for the majority of malignant goiters. The discovery of a solitary nodule is one of the most important findings, for, regardless of all other factors, fully 11 per cent will be carcinoma and an additional 21 per cent will be benign neoplasms.[7] Enlargement of anterior cervical or supraclavicular nodes suggests that a goiter harbors a carcinoma. Unequivocal fixation of a goiter is likewise strong evidence of malignancy. Lastly, on physical examination tracheal deviation and subclavicular or substernal extension should be recognized. These abnormalities, of course, may occur in any type of goiter.

Appropriate laboratory procedures include an x-ray film of the chest with a swallow of barium. Thereby the size and extent of the goiter may be established more precisely, calcification within it identified, esophageal and tracheal encroachment recognized, and pulmonary metastases discovered. There are certain tests that not only aid in demonstrating hypothyroidism and in ruling out toxicity, but also serve as a guide to postoperative substitution therapy. These include determinations of the basal metabolic rate, of the plasma cholesterol, of the blood iodine level (protein-bound fraction), and, less frequently, of oral galactose tolerance.[1] If dyspnea is present due to tracheal compression by the goiter, spurious levels of the basal metabolic rate will be obtained. If the evidence regarding the presence of toxicity is yet ambiguous, determination of the thyroid uptake of radioactive iodine may be of distinct assistance.[4]

The surgical techniques for thyroidectomy are clearly established, but mere enucleation of solitary nodules is reprehensible because of the incidence of neoplasms among them. In such instances the ipsilateral lobe should be totally removed. In case of self-evident malignancy total thyroidectomy should be performed, together with dissection of the cervical nodes if they are involved. In the case of involutionary goiters it is desirable to attempt to leave at least 3 to 5 grams of thyroid in situ and the patient should be advised to use iodized salt.

If recurrence occurs in carcinoma of the thyroid, reoperation should be done for the relief of specific pressure symptoms, radiation being reserved for cases of clearly inoperable tumors. In cases in which it has been determined that a carcinoma will take up a significant amount of radioactive iodine, this agent may be used in the therapy of inoperable tumors or metastases from them. There has not yet been full appraisal of this method. Unfortunately, the author's own experience and that of others[5, 6] has been that in only somewhat over 10 per cent of thyroid carcinomas can it be demonstrated that the tumor tissue itself will take up radioactive iodine in effective amount.

In experienced hands the surgical mortality in non-toxic nodular goiter is in the neighborhood of 0.5 per cent, persistent postoperative parathyroid tetany occurs in less than 0.5 per cent of cases, and vocal cord paralysis (in non-malignant goiters) in 0.5-2.0 per cent of cases. The frequency of postoperative hypothyroidism varies from 3.0 to 15.0 per cent.

The prognosis for patients with malignant goiter is determined largely by the extent of the disease and by the cellular pattern of the tumor. Rapidly growing highly anaplastic carcinomas may cause death from respiratory obstruction in a few months. For patients with more differentiated tumors the prognosis is far better. In this clinic, the average survival period postoperatively of patients with carcinoma of histologic grades I and II has been 49.3 and 38.4 months, respectively. These figures present an overly pessimistic picture, however, since in computing the averages the records of some patients who are still living were included. The survival period for patients was anaplastic grade III carcinomas, on the other hand, has been only 14.2 months. However, since many patients tolerate remote metastases for several years, radical extirpation of the primary tumor should be attempted even in the face of metastasis.[3]

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Hyperparathyroidism

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SUMMARY

Because of the variable and vague clinical symptoms of the disease, diagnosis of hyperparathyroidism may be missed or delayed.

Presenting symptoms and findings may be localized to the urological system or to the skeletal framework, with indications of abnormal blood calcium levels.

In any case in which the patient's only complaints are malaise, lassitude, or progressive weakness, and in which routine laboratory findings are inconclusive, the blood calcium level should be determined.

While not in itself diagnostic, a high level of calcium in the blood will lead to further investigation such as skeletal x-ray studies and blood phosphorus and serum alkaline phosphatase determinations.

Vigilance postoperatively to forestall tetany is of great importance.

In 1891 Von Recklinghausen described the disease of bone known as osteitis fibrosa cystica, but not until 1915 did Schlogenhaufer note the coincidence of that disease and tumors of the parathyroid glands. In 1926, Mandl of Vienna first explored the neck of a patient with osteitis fibrosa cystica, removed a tumor, and effected a cure.

The forces which mobilize the skeletal calcium usually begin as the result of increased pathological production of parathormone in a parathyroid tumor. The classical case of hyperparathyroidism, then, is associated with an isolated adenoma or adenomas, but the disease may be the result of parathyroid hyperplasia. It has been generally confirmed by experience all over the world that Von Recklinghausen's disease is caused by primary hyperparathyroidism, which means that in the vast majority of cases the existence of one or two parathyroid adenomas or diffuse hyperplasia of the entire parathyroid tissue is the causative factor. However, there is not yet a full understanding as to the types of cases in which adenomas develop or as to when hyperplasia of the parathyroid tissue occurs.

Usually hyperparathyroidism progresses slowly. It is encountered more frequently in women than in men and the incidence is greatest in persons between 30 and 60 years of age. The first symptoms usually occur in the extremities, the pelvis, or spine and consist of pain in these parts. Occasionally the first striking sign of the disease is spontaneous fracture, which may lead to roentgen study and diagnosis. Very often the diagnosis of hyperparathyroidism is made quite accidentally in the course of study of x-ray films made for other reasons. The roentgen signs of the disease in the skeletal system are: Generalized decalcification and demineralization of the bones; cysts or giant-cell tumors, or a combination of both; multiple renal calculi, or calcific deposits in joints, in bursae, or in the glands such as the parotid or prostate.

There exists no characteristic localization within the osseous system and the changes may occur anywhere. It is, indeed, an essential part of the roentgen diagnosis that there is no special localization but that large portions of the skeleton are involved. Usually the bone symptoms are not the only indication of the disease. There is almost invariably lassitude and weakness. Vague gastrointestinal manifestations are common. After some time, urogenital symptoms are likely to appear.

CASE REPORT

A boy of 19 complained of pain in the right knee joint after a fall. He also complained of constant, low grade pain in the posterior thoracic region and in the fingers and wrists. He insisted that he was smaller in stature, by one inch, than he had been a year before. Muscular weakness, listlessness, and general apathy were admitted.

A year previously the patient had been in a hospital for two weeks with gross hematuria which was diagnosed as caused by "contusion of the kidney."

The patient was apparently underweight, and there was definite facial pallor. He was unable to elevate the full weight of the body on the balls of his feet, because of general weakness in extremities. A mass, of almond size and shape, could be palpated in the left parotid gland. The thyroid gland was palpable, and an ill-defined mass approximately 1 cm. in diameter was felt in the region of the left lobe. Examination of the heart and lungs revealed no abnormalities. There was slight kyphosis in the lumbar region. Tenderness was noted over the region of the ninth and tenth dorsal vertebrae. The fingers were enlarged in the region of all the interphalangeal joints and there was pronounced tenderness in both hands when gripped. Neurological examination revealed no abnormalities.

There was definite evidence of excessive calcium in the urine as determined by the Sulkowitch test. Result of a Kahn test for syphilis was negative. Serum phosphorus determinations on three occasions were as follows: 2.9 mg., 3.2 mg. and 3 mg. per 100 cc. of serum (normal is 3.7 mg.); and the serum acid phosphatase content was 2.3, 2.2 and 2.3 King-Armstrong units per 100 cc. (normal is 3 units). Serum calcium content on two occasions was 20 mg. per 100 cc. and on another, 19 mg.

X-ray films of the long bones, cranium, vertebrae, abdomen and parotid gland showed remarkable demineralization and decalcification of all the bones, with compression fractures of the 2nd, 3rd, and 4th lumbar vertebrae. There were calcium deposits in the parotid gland and in the trochanteric bursae, and multiple calculi in both kidneys.

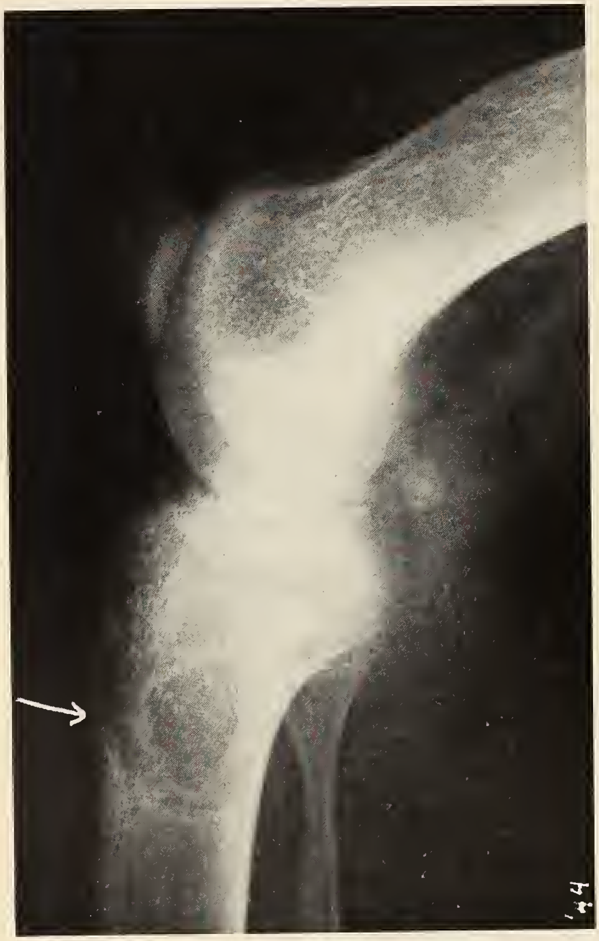
At operation through a Kocher incision, a tumor mass at the lower pole of the left lobe of the thyroid gland was encountered and was easily removed. It was walnut brown, well encapsulated and measured approximately 3 by 3 cm. in diameter.

The postoperative course was entirely uneventful. Calcium gluconate was given intravenously, although no symptoms of tetany developed. The patient left the hospital on the 7th postoperative day. He was examined frequently for the next 12 months.

From the outset there was clinical evidence of a return to normal calcium balance, with gain in general strength and weight. The patient became robust and cheerful. The urine remained calcium-free after three months postoperatively. The patient grew one inch in height in the first year after operation and an additional three-quarters of an inch in the next two years. He was also 32 pounds heavier.

Roentgen films showed remarkable evidence of remineralization of the bones, especially in the bone cysts. There were still small calculi in both kidneys and in the parotid gland.

The tumor was a benign adenoma. Although there are reports of invasive carcinomas in such circumstances, from a practical point of view malignant tumors do not appear to play an important role in connection with hyperparathyroidism. Usually the tumors found in this association are classified as Grade 1, and there are no reports of recurrences or metastases. Such tumors may be single or multiple. They are yellowish brown, chocolate, or bluish gray in color, and are well encapsulated. They may be large enough to be palpated. Often, however, they may be impalpable because of small size or inaccessible position.



Roentgenogram of right knee taken before operation. Note advanced demineralization and bone cyst formation; also calcific deposits in joints.

Microscopically the adenoma usually consists of masses or cords of large, water-clear cells which may have a ballooned appearance owing to abundant glycogen content. There may be many oxyphil cells which are present in the normal parathyroid gland. Cases in which malignant parathyroid tumors caused hyperparathyroidism have been reported much less frequently (only seven in the literature) than cases of malignant parathyroid tumors not causing hyperparathyroidism.

The tumor may be embedded in the thyroid gland, or it may be situated in the upper posterior or anterior mediastinum behind the sternum, in the vicinity of the common carotid artery or in the region of the phrenic nerve. Occasionally instead of an adenoma there may be diffuse hyperplasia affecting all four parathyroid glands.

In the late stages of the disease with all the positive laboratory findings of renal involvement and/or x-ray evidence of changes in the bones, the diagnosis of osteitis fibrosa cystica usually is not difficult. However, when the symptoms or complaints are those of hypercalcemia alone, not only may there be diagnostic confusion, but a patient hospitalized with undiagnosed hyperparathyroidism may sometimes become progressively worse and die because of the ill-defined, non-specific character of the presenting symptoms.

As has been said, palpation of a parathyroid tumor is not always possible. Indeed such tumors are palpable in probably not more than 5 to 10 per cent of cases. Moreover, palpatory findings are misleading, and what is thought to be a parathyroid tumor is often actually a lobe of the thyroid gland.

If in the presence of hyperparathyroidism palpation for a mass is negative or undecisive, thorough roentgen examination should precede operation in order to ascertain whether the tumor lies in the anterior or posterior mediastinum and whether there is displacement of the trachea or kinking of the esophagus.

The tumor is easily removed if immediately accessible. It is best encountered through the usual Kocher incision. Thorough search must be made for multiplicity of tumors. If no tumor is found after diligent search, the mediastinum should be investigated. Parathyroid adenomas have been found in this region—sometimes even after a previous operation has been unsuccessful in locating a tumor.

Forestalling postoperative tetany is a matter of great importance. As a rule, after operation for hyperparathyroidism, especially in cases in which there are pronounced pathologic changes in the bones and high serum phosphatase, the originally high content of calcium in the blood drops abruptly, frequently to a level below the level which may induce tetany (7 mg. per 100 cc.). The decalcified skeleton reabsorbs the calcium from the plasma so rapidly that the calcium current, which before the operation went from skeleton to blood, is reversed. The quantities of calcium that are withdrawn from the blood plasma are so large that hypocalcemia and tetany can result. The cardinal symptom of this process is increased irritability of the peripheral motor nerves so that they are more easily excited by electrical stimulation (Erb's sign), mechanical stimulation (Chvostek's sign) or asphyxia (Trousseau's sign) than are normal nerves. Most patients do not experience convulsions but complain of stiffness in various muscles, especially those of the fingers, legs, face and neck, and of cramps in the extremities. There may be spastic contractions in the fingers and toes and these may be aggravated by temporary circulatory occlusion. Measures to control tetany are: (1) oral or intravenous administration of calcium, (2) administration of vitamin D, (3) administration of A. T. 10 (dihydrotachysterol), and, (4) implantation of parathyroid tissue.

1137 Second Street.

* * *

CASE REPORTS

◀ Aureomycin in the Treatment of Herpes Zoster
◀ Extraocular Muscle Paralysis from Spinal Injection of Pantopaque
◀ Foreign Bodies in the Rectum Simulating Anorectal Disease

Aureomycin in the Treatment of Herpes Zoster

Robert B. Case, M.D., *Redwood City*

AUREOMYCIN has been used for a wide spectrum of diseases, but so far as is known, no report has been published of use of the drug in the treatment of herpes zoster. This is the report of a case of that disease in which aureomycin was given with gratifying results.

CASE REPORT

A 55-year-old white female, when first examined on January 3, 1949, had a typical herpetic lesion involving the left face, extending from the lateral border of the mandible to the mid-line of the nose, and from the mid-forehead to the lateral border of the mouth. In the next three days, the patient was given large doses of vitamin B complex, codeine for relief of pain, and twice was vaccinated with smallpox vaccine. The lesion became more severe, with intense burning, and pronounced edema completely closed the left eye. There was evidence of beginning conjunctival ulceration.

On the fourth day, as a measure of desperation, aureomycin was given, 250 gm. every three hours day and night. Within 24 hours subjective and objective improvement was noted. Codeine was stopped and the patient was able to open the left eye to some extent. Forty-eight hours after treatment with aureomycin was started, the conjunctiva had practically cleared, the rash was much improved, and there was very little residual swelling. The dosage was reduced to 250 mg. four times a day and maintained at that level for three more days. By the end of this time the patient was experiencing no symptoms aside from a very mild burning sensation, and the rash had almost completely disappeared. There was no edema. Treatment with aureomycin was discontinued, and vitamin B complex therapy resumed. All signs and symptoms had disappeared by February 2, 1949, with the exception of a slight burning sensation in the region of the temporomandibular joint and slight erythema over the involved area. Later, even these symptoms completely disappeared.

945 Middlefield Road.

Extraocular Muscle Paralysis from Spinal Injection of Pantopaque

Edwin S. Wright, M.D., *Los Angeles*

PARALYSIS of extraocular muscles occurs in many conditions. It is caused principally by impaired blood supply to the nerves or to their nuclei, or by direct damage to the nerve cells by a toxic agent. Many conditions have been implicated as precipitating factors. Among them are spinal anesthesia,[4, 5, 6] general anesthesia,[2] trauma,[1] otogenic disease, intraorbital inflammations, syphilis, multiple sclerosis, meningitis, encephalitis, nephritis, diabetes, neoplasms,[9] and poliomyelitis.[12]

The sixth cranial nerves are peculiarly liable to damage in intracranial disturbances, owing to the sharp bend they take over the border of the petrous ridge, and because the antero-inferior cerebellar and internal auditory arteries cross the nerves at right angles and often lie ventral to them. Parsons[8] expressed the belief this might account for cases of external rectus palsy following spinal anesthesia. Peter[9] mentioned a case in which abducens paralysis appeared in a baby soon after withdrawal of spinal fluid.

Levine,[6] in a review of extraocular muscle palsy occurring after spinal anesthesia, quoted Blanluet and Caron as believing that the palsy was caused by elective toxic action, localized hemorrhage, or mild meningeal infection; Bonnier as believing that the palsy was a reflex from the injected anesthetic fluid reaching the labyrinth and exciting irritation there; Holmes as believing that localized collections of fluid compressed the nerves themselves; and Schmidt-Rimpler as believing that the sixth nerves are most often affected because of their superficial position in relation to the fourth ventricle, the latter communicating through the foramen of Magendie and lateral apertures with the arachnoid space of the cord which carries the anesthetic fluid.

Myelography as a cause of extraocular muscle paralysis is not mentioned in the literature. Use of this procedure with Pantopaque for diagnostic purposes is rather common, especially in diagnosis and localization of injury to intervertebral discs. Pantopaque is a mixture of ethyl esters of isomeric iodophenylundecylic acids in absorbable oil type media of relatively low viscosity. Since it is absorbable, any small residue after its use is said to be readily eliminated.[11]

Ramsey and Strain[11] observed few reactions from use of the material, those being mild aseptic meningeal reaction or transient muscle aching, headache, paresthesia of the lower extremities, or possibly temperature elevation. They stated no complications as a result of Pantopaque myelography had been observed. Copleman[3] noted no reactions resulting from retention of the material in the subarachnoid space in cases in which complete removal had not been possible. Preacher and Robertson[10] observed one case in which there was benign meningeal reaction following intracranial progression of Pantopaque. Wyatt and Spurling[13] observed no toxic reactions following use of the material. Lindblom,[7] in a summary of complications following myelography with the use of Abrodil or Skiodan (an iodized oil), mentioned no cases of extraocular muscle palsy, though headache, stiff neck, hyperesthesia and shock were fairly common (54 complications in 721 cases). However, Lindblom used novocain spinal anesthesia before introducing the radiopaque oil into the spinal canal.

The following case shows that Pantopaque myelography may be attended by unexpected consequences:

CASE REPORT

A white male patient 37 years of age was treated conservatively throughout 1946 for pain in the left sacro-iliac area and down the left thigh. In August 1947, a myelographic examination was made at a Veterans Administration hospital. Pantopaque was used and 8 to 10 cc. of spinal fluid was withdrawn. Occipital headache and pain in the

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From the Moore-White Medical Foundation, Department of Ophthalmology, Los Angeles.

back of the neck, which the patient described as "severe," developed. The patient was discharged from the hospital as improved, although no treatment had been given; the pain in the lower back was considered not due to organic disease.

Five days after the myelographic examination, the patient became aware of diplopia and he became dizzy and nauseated. Examination of the eyes showed normal acuity of vision in both. A cover test showed esotropia of 8 diopters at 6 meters and exophoria of 4 diopters at 33 centimeters. A motility test showed the external rectus muscle of the right eye to be paretic. The fundi were normal. A patch was worn over the right eye for two weeks and at the end of that time the acuity of the right eye was 20/25; of the left, 20/25. There was esotropia of 15 diopters at 6 meters and right hypertropia of 4 diopters at the same distance. Three months after onset, diplopia suddenly ceased, and two weeks later all evidence of extraocular muscle weakness disappeared. At that time there was again normal acuity of vision in both eyes, and a cover test showed orthophoria at 6 meters. At 33 centimeters there was exophoria of 6 diopters. Motility was normal. The near point of convergence was at 100 mm.

COMMENT

The symptoms in this case remarkably resembled those of abducens paralysis following spinal anesthesia. The delayed onset, spontaneous recovery and solitary abducens palsy were typical of the circumstances reported for that condition.

SUMMARY

A case of extraocular muscle paralysis following myelography with Pantopaque is reported. Spontaneous recovery occurred with conservative treatment.

511 South Bonnie Brae.

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Foreign Bodies in the Rectum Simulating Anorectal Disease

M. D. Redding, M.D., *San Diego*

The classical symptoms of anorectal disease such as pain, pressure, protrusion, bleeding, and alteration of bowel habit are familiar to all physicians.

These symptoms may also be produced by foreign bodies lodged within the terminal portion of the alimentary canal, thus simulating anorectal disorders more commonly encountered in proctologic practice. According to Bacon[1] there are four routes by which a foreign body may enter the rectum. These are: By ingestion and normal passage to its terminus; through development within the intestinal tract; by entry from a neighboring organ; and finally by insertion through the anus. Obviously, entry through either the upper or lower orifice of the alimentary tract is the most common. Many bizarre foreign bodies have been reported in the literature[2] and it is not necessary to detail them here.

The following case reports are offered to illustrate the mimicry of anorectal disease by the presence of these objects, to demonstrate the advisability of considering foreign body in the evaluation of proctologic complaints, and lastly to show how readily diagnosis may be made if the patient is examined and not merely given a suppository and a word of reassurance. The presence of a foreign body was suspected in only one of the four cases—Case 4—and then only because of the patient's manner while giving the history.

CASE REPORTS

Case 1: A 75-year-old white man entered the office complaining of severe anal pain of sharp character aggravated by stool and following stool for the preceding four days. An occasional streak of blood had been noted on the toilet tissue. Inspection of the anal area disclosed no abnormality. The sphincter was tightly contracted. Upon digital examination a sharp, hard object lodged just above the internal sphincter was noted. This was extracted and proved to be a fragment of bone an inch long and one-half inch wide. The patient, who wore dentures, surmised that it had been ingested with lamb stew eaten several days previously. Proctoscopic findings were normal.

Case 2: A 63-year-old white man reported with the complaint of painful protrusion from the anus of two days' duration which had appeared suddenly after stool and could not be reduced. Usual palliative remedies had afforded no relief. Inspection of the anus revealed a spicule of bone protruding from the orifice. The fragment was removed and found to be a thin lance-shaped bone measuring 1¼ by ½ inches. The patient, who wore dentures, said that he probably had swallowed the bone while eating ground chicken several days previously. Proctoscopic findings were normal.

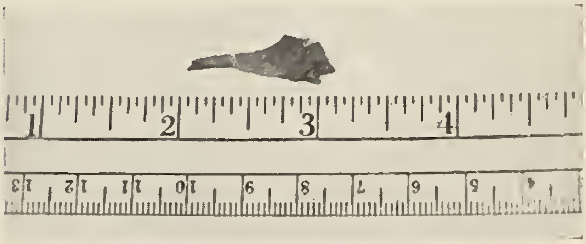

Figure 1.—Chicken bone fragment removed from the anus that caused severe pain and bleeding.

Case 3: A 43-year-old obese white woman weighing well over 300 pounds sought consultation because of progressive constipation of four months' duration and a sense of pressure within the rectum. There was no history of pain, bleeding or protrusion. Inspection and digital examination disclosed no abnormality. Proctoscopy demonstrated a huge fecal impaction high in the rectum. This was removed. Subsequent examination disclosed no abnormality.

Case 4: A 65-year-old white man was referred by another physician because of sudden change in bowel habit with severe constipation of one week's duration which had persisted despite many laxatives. Inspection of the anus demonstrated no abnormality. Upon introducing the finger a hard movable mass could be felt. With the introduction of a large anoscope a feces-covered stick was visualized with one end impinged against the lowest valve of Houston. A Kocher clamp was inserted, the stick was grasped and elevated and, along with the anoscope, withdrawn from the lower bowel. The stick was a piece of tree branch an inch in diameter and ten inches long, sharpened on one end and blunt at the other. Questioning elicited that one week previously, while drunk, the patient had been induced to insert the stick into his rectum and had not been able to retrieve it. Proctoscopic examination at the time demonstrated severe mucosal ulceration one inch in diameter where the foreign body had lodged against the anterior surface of the rectum. The patient was instructed to return for reexamination, but did not keep his appointment.

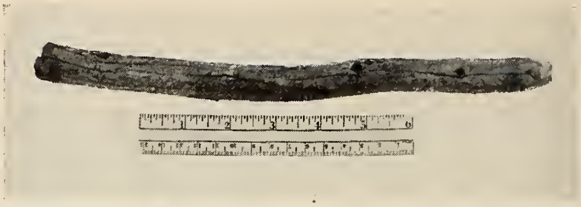

Figure 2.—Stick removed from the rectum and sigmoid that produced sudden change in bowel habit.

SUMMARY

Foreign bodies lodged within the rectum may mimic any of the well known symptoms of anorectal disease, but their presence may be readily diagnosed by examination.

Instances of the lodgement of foreign bodies within the terminal part of the alimentary canal by ingestion, formation within the intestinal tract, and by introduction through the anus are presented. Symptoms were indistinguishable from those produced by true anorectal disease.

Elderly wearers of dentures may ingest foreign bodies unknowingly. Both patients who swallowed bone fragments were in this category.

Medico-Dental Building.

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EDITORIALS

Doctors and Lobbies

For many years the medical professional has held itself aloof from the crass business of lobbying legislative bodies. The very word "lobby" has set up a sordid picture in many medical minds and has caused doctors to shy away from the implication that a noble profession should stoop to any endeavor to influence legislation.

On the other hand, Mr. Webster and other lexicographers have long defined a lobby or the practice of lobbying in much more acceptable terms; the American people have long since recognized the practice of attempting to influence legislation as nothing more than the exercise of the privilege of petitioning the government which is specifically set forth in the Bill of Rights.

On August 16, 1949, a showdown on this subject was enacted in the U. S. Senate. It is a pleasure to report that the medical "lobby" won out.

Briefly, the President of the United States offered a plan of reorganization of certain executive departments of the government, in conformity with terms of a law passed by the Congress in 1946 and presumably in furtherance of one section of the Hoover Commission survey and recommendations. The President asked that the several governmental departments of health, education and social security be combined in a Department of Welfare, with its head a member of the Cabinet. (The Hoover Commission had recommended the establishment of a "United Medical Service organization as an independent administration reporting to the President, *instead of as a bureau of a department of health, education and security.*" [Italics by Ed.])

Despite the source of the presidential proposal, and despite the propagandistic appeals of the Committee for the Nation's Health and other well-wishers that the President's program was following the Hoover Commission recommendations, it was obvious to some members of Congress that the plan was diametrically opposed to what Mr. Hoover and his unbiased commission of citizens had proposed.

The job of medicine, and the job which medicine undertook singlehanded, was to point out to the Senate how widely the President's proposal had missed the mark. In the eyes of the critics, that undertaking was a job of lobbying. (Of course, the propaganda *for* the President's proposal was not lobbying.)

When the chips were down, when the Senate roll was called, the vote was 60 to 32 against the President's proposal. The medical profession had been able to point out the fundamentals of the presidential scheme to that many Senators—and even to more, although some of them seemed to hold party considerations above other factors in the voting.

Thus ends one aspect of the President's reorganization program. And thus begins, it is to be hoped, the realization of some facts which have long been lurking around the corner, unrecognized by some. First, the authority of the President is not absolute but is subject to the will of the Congress, the elected representatives of the people. Second, that the truth can be made to prevail despite the high position of some who would distort it to their own ends.

Finally, the medical profession must by now have learned of its own strength and authority in the cause of truth and justice, when and if the profession decides to strap on its weapons and go out to do battle. This fight was won by the profession itself.

If this be lobbying, let us have more of it in the cause of sound scientific principles and in behalf of the people of our country.

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NOTICES AND REPORTS

Council Meeting Minutes

Tentative Draft: Minutes of the 364th Meeting of the Council of the California Medical Association at San Francisco, July 9, 1949.

The meeting was called to order by Chairman Sidney J. Shipman at 9:30 a.m., Saturday, July 9, 1949, in Room 210 of the St. Francis Hotel, San Francisco.

Roll Call:

Present were President Kneeshaw, President-elect Cass, Speaker Alesen, Vice-Speaker Charnock, Councilors Shipman, Anderson, Thompson, Green, Crane, Ray, Ball, Lum, MacLean and Frees, Secretary Garland and Editor Wilbur.

Absent (for illness or other cause): Councilors Pollock, Henderson, Montgomery, Bailey and Cherry.

Present by invitation: John Hunton, executive secretary; William P. Wheeler, assistant executive secretary; Howard Hassard, legal counsel; Ed Clancy, field secretary; Ben H. Read, executive secretary of the Public Health League of California; Dr. Edwin L. Bruck, former Councilor; Dr. Dwight H. Murray, chairman of the Committee on Public Policy and Legislation; Dr. John R. Upton, chairman of the Blood Bank Commission; Dr. Henry Gardner, secretary, and E. R. Paolini, auditor, of California Physicians' Service; Ned Burman, of public relations counsel; and county society executive secretaries Frank Kihm of San Francisco, Glenn Gillette of Fresno and Vance Venables of Kern County.

A quorum present and acting. On motion duly made and seconded, it was unanimously voted to send a message of encouragement to Councilor Pollock in his present illness.

1. *Minutes for Approval:* On motion duly made and seconded, it was voted to approve the drafts of minutes of the 359th to 363rd meetings of the Council, held in Los Angeles from May 7 to May 11, inclusive, 1949.

2. *Membership:*

(a) A report of membership as of June 30, 1949, was received and ordered filed.

(b) On motion duly made and seconded, 91 members whose 1949 dues had been received since May 11, 1949, were voted reinstatement as active members.

(c) On motion duly made and seconded, one member whose 1948 and 1949 dues had been received since May 11, 1949, was voted reinstatement as an active member for those years.

(d) On motion duly made and seconded in each instance, four applicants were elected to Retired Membership, as follows:

Lucius Belding Phelps, Orange County.
Charles R. Geith, Riverside County.
William A. Reckers, Sacramento County.
Ream S. Leachman, Solano County.

(e) On motion duly made and seconded in each instance, 13 applicants were elected to Affiliate Membership, as follows:

John R. Bryan, San Francisco.
Elizabeth Cuthbertson, San Francisco.
Frederick Kreutzer, San Francisco.
Harvey W. Kring, San Francisco.
Harold Davis, San Francisco.
Marshall J. Fiese, San Francisco.
Fernando Gomez, San Francisco.
Charles Gray, San Francisco.
Elizabeth Kremser, San Francisco.
Barbara Mullen, San Francisco.
Eugene Padel, San Francisco.
S. J. Polk, San Francisco.
Thomas C. Stevenson, San Francisco.

(f) On motion duly made and seconded in each instance, a reduction of dues in the amount of the formula previously adopted by the Council was granted to 12 applicants, as follows:

T. E. Bartholomew, Imperial.
Don S. Dryer, Los Angeles.
Joseph Gaster, Los Angeles.
Margaret Storkan, Los Angeles.
C. F. W. Kohlenberger, Orange.
David C. Tower, San Diego.
George O. French, San Luis Obispo.
Alice M. Lemanski, Santa Clara.
Stanley J. Lourdeaux, Santa Clara.

John M. Mott, Santa Clara.
W. Gordon Smith, Santa Barbara.
Thomas F. Keyes, Yuba-Sutter-Colusa.

(g) On motion duly made and seconded, Dr. Selig B. Weinstein of Alameda County was elected to Associate Membership.

(h) On request of the executive secretary, a ruling was asked on the matter of policy in granting Affiliate Membership to applicants who had completed their regular medical training, had engaged in private practice for a temporary period to obtain funds and had been regular members during that period and had then undertaken additional training as hospital residents in pursuit of specialty certification. On motion duly made and seconded, this question was referred to a special committee named as Dr. Alesen, chairman, and Drs. Frees and Charnock.

3. *Financial:*

A report of bank balances as of June 30, 1949, was received and ordered filed.

(b) A report of revenues and expenditures for June and for the 12 months ended June 30, 1949, for general funds and for the official journal, was received and ordered filed.

(c) On motion duly made and seconded, extraordinary services of legal counsel for the period ended June 30, 1949, were approved for payment.

4. *Councilor Resignation:*

The resignation of Dr. Walter S. Cherry as Councilor-at-Large was read and, on motion duly made and seconded, was accepted with regret. This resignation left a Councilor vacancy, to be filled until the time of the next Annual Session. On motion by Ball, seconded by Ray, Dr. Francis E. West of San Diego was unanimously appointed a member of the Council, to serve the portion of the unexpired term of Dr. Cherry until the time of the next Annual Session.

5. *State Department of Public Health:*

Dr. Malcolm Merrill, Deputy Director of Public Health, discussed the situation in Merced County, where the county hospital application for state and federal funds for a construction addition has been tentatively approved. He quoted from a resolution adopted by the county board of supervisors, which stated that the facilities of the county hospital should be made available to residents of the county unable to pay for services, after social service investigation, or to part-pay patients admitted only where hospital facilities were not available.

Dr. Anderson stated that the records of the county hospital showed that 15 to 25 per cent of all paying patients in the county were admitted to the Merced County Hospital, that the hospital's average cost was about $14 a day and that collection for such cases was $7.50 a day to private patients and $7 a day to patients of insurance carriers under industrial accident classifications. He stated that the installation of a sprinkler system in the Mercy Hospital, Merced, would permit that institution to receive state approval and to make more approved beds available to the residents.

Mr. Hassard asked Dr. Merrill if the State Department of Public Health had committed itself beyond the point of declining the application of the Merced County Hospital; Dr. Merrill stated that the application had received tentative approval but had not been finally approved for forwarding to the U. S. Public Health Service for approval of federal appropriations.

Mr. Hassard also recommended the advisability of establishment of a reasonable understanding between the Association, the Department of Public Health and the Hospital Advisory Committee of that department, relative to the allocation of available funds and the adoption of policies as between county hospitals, district hospitals and voluntary hospitals. On motion duly made and seconded, it was voted to ask the State Department of Public Health to delay the approval of the application of the Merced County Hospital for construction funds, pending a meeting between state officials and a special committee composed of C. V. Thompson, A. E. Anderson, L. A. Alesen and John Hunton, ex-officio.

(b) Dr. Merrill also reported that changes had been made in the system of issuing permits for sewage disposal, as a result of legislation adopted in the 1949 legislative session; that mass chest film surveys were in the planning stage in Los Angeles and San Diego counties; that a full-time health department had been established in Butte County.

On motion duly made and seconded, it was voted to notify the county medical societies, especially San Francisco and Alameda counties, that application must be made by the county health department, seconded by the county medical society and the county tuberculosis associations, for the establishment of mass chest film surveys.

(c) Dr. Shipman reported that some difficulties had been encountered in the maintenance of the Weimar Sanatorium and the Association was being asked to survey the situation and report to the council of representatives of the 15 counties which jointly operate the institution; on later discussion by Dr. Green, it was regularly moved, seconded and voted to refer this matter to the Committee on Hospitals, Dispensaries and Clinics, with the request that an inspection and report be made, copies to go to the Boards of Supervisors of the 15 participating counties, and that the Council of the Weimar Sanatorium be asked to furnish the Association a copy of the inspection report expected from Dr. Kupka of the State Department of Public Health.

6. *Voluntary Health Insurance:*

Dr. Frees reported that a group of insurance underwriters had met with committees of the Los Angeles County Medical Association to discuss the possibility of establishing a uniform type of accident and health insurance policy which might be granted a seal of approval by the Association and provide indemnification to policyholders on a fee schedule which would be promulgated by the Association and recommended to all members as covering full fees for policyholders below a specified income ceiling. During the lunch hour Messrs. Eugene Robison, Lee D. Cranmer, Gilbert Smith and Ralph J. Walker discussed this proposal. It was regularly moved, seconded and voted to refer this proposal to a special committee to consist of Donald D. Lum, chairman, John Ball and Hartzell Ray.

7. *Committee Appointments:*

(a) On motion duly made and seconded, Dr. William A. Key of San Mateo was appointed to the Committee on Medical Defense, to succeed Dr. Nelson Howard, resigned.

(b) The chairman announced the appointment of Dr. William G. Donald of Alameda County as a member of the Committee on Industrial Health, to succeed Dr. A. B. Carson of Alameda County. This is a special committee, holding office through annual appointment by the Council; Christopher Leggo, Contra Costa County, chairman, and Louis Cheney, Los Angeles, member. The Council confirmed this appointment.

(c) The chairman named, and the Council confirmed, Drs. C. V. Thompson, chairman, A. E. Anderson and L. A. Alesen as members, and Mr. Hunton, ex-officio, a special committee to meet with the State Department of Public Health on matters of mutual interest.

(d) The chairman named, and the Council confirmed, Drs. Wayne Pollock, chairman, E. V. Askey and M. L. Montgomery, members, of a special committee to meet with a similar committee from the osteopathic profession.

(e) The chairman named, and the Council confirmed, Drs. H. Gordon MacLean, chairman, J. W. Green and J. J. Crane, members, of a special committee to consider the functions of other healing art groups. Dr. D. Murray and Messrs. Read and Hassard were named as ex-officio members of this committee.

8. *Legal Department:*

(a) Mr. Hassard reported that he had prepared an opinion on the employment of salaried physicians by hospitals, following opinions on this subject which had been prepared by the State Attorney General, by counsel for the Association of California Hospitals and by five attorneys selected to prepare comparable opinions by hospitals in this latter association. Mr. Hassard's opinion follows the reasoning of the Attorney General's opinion, to the effect that the employment of salaried physicians by hospitals (other than internships and residencies permitted by law), where the hospital makes a charge for the services of such physician, constitutes a breach of the statutory provisions against the corporate practice of medicine.

(b) Mr. Hassard presented a legal opinion based on an opinion issued by the State Attorney General relative to the inspection of hospital records by representatives of the State Department of Public Health. Mr. Hassard's opinion held that the State Director of Public Health does not have legal authority to inspect hospital records of private patients. It was regularly moved, seconded and voted that publicity be given in the official journal to this opinion.

9. *Public Policy and Legislation:*

Dr. Dwight H. Murray, chairman of the Committee on Public Policy and Legislation, reported on the state legislative session which ended July 2, 1949. Mr. Read, Mr. Clancy and Mr. Hassard augmented this report.

On motion duly made and seconded, it was unanimously voted to send the official thanks of the Council to the members of the Sacramento Society for Medical Improvement for their cooperation with the legislative representatives during the session.

On motion regularly made and seconded, it was voted to go on record in support of a constitutional amendment which will come before the voters of California, to provide annual salaries of $3,600 for members of the Legislature, to limit the budget sessions of the Legislature to budget considerations only, to limit the number of days on which interim legislative committees might meet, and to limit the number of days of meeting of regular legislative sessions.

On motion duly made and seconded, it was voted to authorize the Executive Committee to define the functions and finances of the special committee on other healing art groups (Item 7(e)).

10. *Blood Bank Commission:*

Dr. John R. Upton, chairman of the Blood Bank Commission, reported that a new blood bank would start operations in Santa Rosa in September, that a new Valley Blood Bank was now operating in Fresno to serve Fresno, Tulare and Merced counties, that agreement has been reached to establish a bank in Santa Barbara to serve Santa Barbara, San Luis Obispo and Ventura counties, and that the outlook for establishment of a bank in Bakersfield is encouraging.

Dr. Upton placed before the Council several recommendations of the Blood Bank Commission, each of which was regularly moved, seconded and voted for adoption. These were:

(a) That a full-scale bleeding center be set up at the 1950 A.M.A. session in San Francisco.

(b) That the Principles of the American Association of Blood Banks be approved.

(c) That an appropriation of $5,000 for activities of the Blood Bank Commission be made.

(d) That approval be granted to the appointment of a part-time assistant to the director of the Blood Bank Commission, on the basis of $500 monthly for full-time work.

(e) That Drs. Thomas F. O'Connell, Jr., of San Diego, Clarence D. Newel of Fresno (to succeed W. L. Adams, Jr., of Fresno) and L. N. Osell of Kern

County be appointed members of the Blood Bank Commission.

Dr. Upton also asked if the Blood Bank Commission might accept contributions made by laymen. The Council approved such acceptance.

11. *Cancer Commission:*

Dr. David A. Wood, secretary of the Cancer Commission, brought before the Council five items approved by the Cancer Commission, on which Council confirmation was sought. These were:

(a) Reappointment of Dr. Frederick R. Hook as Medical Director at a salary of $12,000 annually, one-half of which would be met by the American Cancer Society, California Division. On motion duly made and seconded, the Council voted approval of this arrangement.

(b) Establishment of a standard $50 honorarium for speakers in the professional educational campaign. On motion duly made and seconded, this policy was voted approval.

(c) The question of accepting cases referred by practitioners in other professions. On motion duly made and seconded, it was voted to refer this question to the county medical society where such referrals might arise.

(d) The question of approval or disapproval of members of certain other professions on tumor boards. No action was taken.

(e) Establishment of a policy in the American Cancer Society, California Division, that county branches shall not take action on state legislative matters except with the consent of the state office. On motion duly made and seconded, this policy was granted approval.

12. *California Physicians' Service:*

(a) Dr. Donald Laing presented to the Council a suggested procedure for the establishment of radiological and pathological fees to be paid by C.P.S.; the program was prepared by the Pacific Roentgen Society and submitted to the Board of Trustees of C.P.S., which had asked that it be referred to the C.M.A. Council for comment. Its stated objective was to adjust the situation whereby radiological and pathological fees had originally been set on a specialist basis but where by practice an estimated two-thirds of these services in ambulatory radiology are now being performed by non-specialists. The program contained the following suggestions, which were estimated to produce a saving to C.P.S. of $150,000 to $200,000 annually:

(1) Revise the C.P.S. radiology and (presumably) pathology schedules to about 50 per cent of their present levels.

(2) When consultation is obtained on these services, by referral of a patient to a radiologist or pathologist, the decreased schedule be applied but a reasonable consultation fee (e.g., the difference between the present and the decreased schedule) be allowed the specialist.

(3) To gauge the value of such special diagnostic services, create a suitable number of reviewing boards which would audit random samples of radiological and pathological work, to protect the subscribing member and to locate services deemed below a reasonable standard of quality.

(4) Prepare plans for an annual limit on the value of special tests which may be demanded by ambulatory patients, except in cases of major or catastrophic illness, such as diabetes mellitus, proven malignancy, etc.

(5) For purposes of administration of these provisions, a specialist would be considered a physician who has received special training in and preferably certification in his specialty, who limits his practice to that specialty and who accepts none but referred cases.

After discussion, it was regularly moved, seconded and voted to approve this program in principle and refer it back, with this approval, to the C.P.S. Board of Trustees.

(b) Dr. Henry Gardner, secretary of C.P.S., reviewed the actions taken by the Administrative Members at the Annual Session, in election of officers and Trustees and on resolutions considered. He also reported that a new fee schedule has been approved by the Trustees, tentatively effective September 1, 1949. Dr. Gardner stated that review committees are now operating in all parts of the state and that a member of the Board of Trustees is present at each meeting of these committees.

(c) Dr. Cass reported that the joint operating committee of C.P.S. and Blue Cross in Southern California is in active operation and is now looking for a joint operating manager for that area.

(d) Dr. Kneeshaw suggested that the Board of Trustees of C.P.S. plan to meet with the presidents and secretaries of the county medical societies before annual sessions. On motion duly made and seconded, it was voted to recommend to the Trustees of C.P.S. that such meetings be held.

(e) E. R. Paolini distributed a C.P.S. financial report, stated that individual membership contracts would be offered in all counties from Fresno north on August 1, and said that C.P.S. is employing an eastern actuary to study the problem of developing a contract for catastrophic coverage. Beneficiary membership of C.P.S. is now about 780,000, he stated.

13. *Industrial Fees:*

(a) Dr. Cass reported on meetings held with representatives of insurance carriers and on steps subsequently taken. He stated that the joint committees would meet again on July 19 in a further effort to work out a schedule of fees acceptable to both parties.

(b) Dr. Shipman presented the situation raised by the Department of Employment, State of California, in setting fees for examinations of claimants for disability insurance. The Council approved a draft of a letter to the medical director of the department, in which it was pointed out that the Industrial Accident Commission no longer maintains a fee schedule and in which the department was requested to recognize the schedule prepared by the Association.

14. *California Medicine:*

(a) Editor Wilbur presented a request received from a medical organization for establishment of specified page each month for news and other items deemed interesting to general practitioners. On motion duly made and seconded, it was voted that the sense of the Council was that no change be made in existing editorial policies.

(b) A request for the naming of representatives of Allergy to the Editorial Board was considered and on motion duly made and seconded, it was voted to appoint Drs. Frank G. Crandall and Samuel H. Hurwitz as members of the Editorial Board.

15. *Long Beach Hospitals:*

Material was presented relative to the request of hospital interests in Long Beach for the issuance of municipal bonds to provide hospital construction funds, the hospitals to be deeded to the municipality and leased to present operators at a nominal annual rental. On motion duly made and seconded, it was voted to refer this matter to the Committee on Hospitals, Dispensaries and Clinics.

16. *Lassen-Plumas-Modoc County Medical Society:*

The request of the Lassen-Plumas-Modoc County Medical Society for naming of a referee to conduct hearings on charges of unprofessional conduct brought against a member of the society was considered. It was regularly moved, seconded and voted that Arthur Connolly, Jr., of San Francisco be appointed referee, the Executive Committee to make proper arrangements for his services.

17. *New Mexico Physicians' Service:*

Mr. Hunton reported that the business of New Mexico Physicians' Service had been contracted for transferral to a commercial insurance company under an agreement which will return a maximum of $20,000 to the former organization over a period of the next year. It is estimated that $8,000 to $10,000 will become available for repayment of a portion of the loan funds advanced by the Association. Mr. Hunton was instructed to request that the Association be kept informed of the progress of this transfer.

18. *Medical Society of the State of California:*

A progress report on discussions with officers of the Medical Society of the State of California was given by Dr. MacLean and it was regularly moved, seconded and voted to refer this matter to the Executive Committee for further report from the committee.

19. *Interscholastic Federation Protection Fund:*

Discussion was held on the request of the Interscholastic Federation Protection Fund for an establishment of a fee schedule to provide services for secondary school athletes injured in school sports. It was regularly moved, seconded and voted to refer this matter to the special insurance committee under the chairmanship of Dr. Lum.

20. *Public Relations:*

Ned Burman of public relations counsel gave a digest of the progress of the national educational campaign and suggested contact with Congressional representatives when they return to their home districts.

On motion duly made and seconded, it was voted to voice official opposition to HR 2892 and HR 2893, which would extend social security taxes to self-employed persons.

Dr. Frees reported that plans were under consideration for a dinner to be given to business and civic leaders in the Los Angeles and Southern California area, probably in the fall of the year.

21. *Memorial to Dr. Ray Lyman Wilbur:*

It was regularly moved, seconded and voted to refer to the Executive Committee the matter of establishing a suitable memorial to the late Dr. Ray Lyman Wilbur.

22. *Chamber of Commerce of the U. S.—Pamphlets:*

It was regularly moved, seconded and voted to secure copies of a pamphlet on health insurance issued by the Chamber of Commerce of the United States and to distribute these to all members.

23. *New and Miscellaneous Business:*

Several items of miscellaneous business were discussed and ordered referred to the Executive Committee for disposition.

24. *Time and Place of Next Meeting:*

It was agreed to hold the next meeting in Los Angeles on Saturday, September 24, 1949, to continue the following day if, in the opinion of the chairman, such continuance was indicated.

Adjournment.

SIDNEY J. SHIPMAN, M.D., *Chairman*
L. HENRY GARLAND, M.D., *Secretary*

Irwin Memorial Blood Bank

The Nation's First County Medical Society Blood Bank

For over eight years, the Irwin Memorial Blood Bank, founded and operated by the San Francisco County Medical Society, has been providing whole blood and plasma for transfusion therapy. When it was started in 1941, it had four basic aims:

1. To provide whole blood and plasma, at cost, to patients in the area requiring transfusions;
2. To make certain that blood was available for all patients, regardless of ability to pay the service fee or provide donor replacements;
3. To process and distribute plasma to lend-lease nations;
4. To create a plasma reserve for the people of San Francisco.

Today, after eight increasingly useful and successful years, the blood bank is still functioning on the same principles.

In the first year of operation, 7,362 donors gave blood which was used for whole blood transfusions or processed for plasma. With America's entrance into the war, the blood bank made its products available to civilian and military hospitals. Over 6,000 units of blood and plasma were donated to allied armed forces during the war years.

PROCUREMENT AND SERVICE

Today, the picture is very different. Monthly over 3,000 people are applying as donors and the bank is now distributing over 2,500 units of whole blood and processing the remainder as plasma. At present, the blood bank is providing transfusions to patients in some 55 hospitals with a total bed capacity of 10,613. It is the only bank serving San Francisco, Marin and Napa counties, and it supplies part of the needs in the Vallejo area. Requests to supply blood to other areas are being received in increasing numbers.

The blood bank has registered over 155,000 donors; 140,000 units of whole blood have been distributed to patients, and thousands of plasma units processed. The bank now distributes its own irradiated plasma which is available for hospitalized patients for $10 plus a donor replacement for each unit.

SOURCE OF BLOOD

When blood is supplied to patients in hospitals, a service fee of $6 is collected at the hospital for each unit. This is the actual cost of drawing, preparing, packaging and transporting the blood from the bank to the hospital, and is the only fee received by the bank. In addition, each unit of blood withdrawn must be replaced to make blood available for other patients. To insure replacements, the hospital charges the recipient a $25 "professional donor" fee for each unit, making the total charge per transfusion $31. In order to receive refund of the $25 professional fee, the blood must be replaced by donors recruited from the patient's family or friends or by a previously established blood credit. If this is not done, the hospital pays a professional donor the regular $25 fee to make the replacement to the bank. In no case does the blood bank receive the $25 fee. The bank, hospitals and patients' physicians encourage voluntary donor replacements so that patients may have the advantage of transfusions at the low cost of $6 each.

One hundred seventy business firms, societies and fraternal organizations have blood reserve funds with the bank. All deposits to a reserve fund are held for a one-year period for the use of the members or their immediate families. The replacement is debited from the fund upon authorization from the reserve chairman of the organization. Funds are kept active by regular blood donations of members.

Individuals may also deposit blood and thereby establish credit for one year which is available for their relatives and friends as replacement for blood provided by the bank.

For the purpose of encouraging voluntary blood donations, the bank operates mobile units to visit fraternal and industrial organizations, Army and Navy installations, and other counties. Fifty such trips have been conducted since the start of the bank in 1941.

THE STAFF—PROFESSIONAL AND VOLUNTEER

A paid professional staff of 30 employees is required to operate the bank. Supplementing this minimum paid staff, a corps of 75 volunteers, many of whom are physicians' wives, deliver blood to hospitals, serve as canteen workers and hostesses. This service represents a saving of $15,000 a year in salaries, an important consideration for a non-profit organization.

BLOOD BANK RECIPROCITY

Blood banks receive daily requests from individuals to transfer blood credits from one area to another; for example, the inquirer resides in San Francisco, and friends living elsewhere wish to donate to the credit of the recipient. As a convenience to patients requiring blood replacements, Irwin maintains reciprocity with other non-profit community and hospital blood banks in California and several throughout the nation.

MORE BANKS

More non-profit blood banks are necessary in the state. Irwin is actively cooperating with the California Medical Association Blood Bank Commission in the formation of new blood banks for other communities to encourage complete blood coverage for all California.

C.P.S. Now Has Over 10,000 Physician Members

A notable event in the historic growth of California Physicians' Service was recorded during August when physician membership in the pioneer prepaid health plan passed the ten thousand mark.

The achievement represents the second important milestone reached by C.P.S. during the past few months. Earlier this year the organization observed its tenth anniversary.

Commenting on the occasion, W. M. Bowman, C.P.S. executive director, issued the following statement:

"The founding of California Physicians' Service more than a decade ago was an outstanding example of the medical profession's will to make prepaid medical care, on a voluntary basis, available to the public—and thereby assist greatly in the improvement of general health conditions.

"Today's membership of more than 10,000 California physicians in C.P.S. is further convincing evidence that the medical profession can meet and is meeting the need for prepaid medical care. It makes the claims of those who propose government-controlled medicine even more groundless."

He pointed out that C.P.S., founded in 1939 under the leadership of the late Dr. Ray Lyman Wilbur, had an initial physician membership of 5,000. It was the first statewide, medically sponsored health plan in the United States and has been a model for other state plans organized later.

Figures released by Mr. Bowman showed that, from the original 5,000 physician membership, the number of doctors enrolled in C.P.S. increased modestly during the war years, then rose rapidly after the war. The year-by-year figures are:

Year	Physician Members
January, 1940	5,000
January, 1941	5,208
January, 1942	5,300
January, 1943	5,200
January, 1944	5,200
January, 1945	5,400
January, 1946	5,890
January, 1947	8,000
January, 1948	9,000
January, 1949	9,600
August, 1949	10,000

California Medical Association

Proposed New Constitution and By-Laws

The following is the final draft of a proposed revision of the Constitution and By-Laws of the California Medical Association. It was submitted to the 1949 Annual Meeting of the C.M.A. House of Delegates by Sam J. McClendon, M.D., chairman of a committee which was appointed to review a tentative redrafting of the present document. Action on the proposed revised version is scheduled to be taken by the House of Delegates at the Annual Meeting in 1950.

CONSTITUTION

ARTICLE I.—NAME, PURPOSES AND ORGANIZATION

Section 1.—Name

The name of this organization is California Medical Association (hereinafter referred to as the Association).

Section 2.—Purposes

The purposes of this Association are to promote the science and art of medicine, the protection of public health, and the betterment of the medical profession; to promote similar interests of its component societies; and to unite with similar organizations in other states and territories of the United States to form the American Medical Association.

Section 3.—Organization

This Association has two divisions: One, the Association as an organization; and Two, the Scientific Assembly. The Association as an organization includes component societies and their active members, the House of Delegates, Council, Commissions and Standing Committees. The Scientific Assembly includes all members of the Association and the scientific sections.

Section 4.—Definition of Component Societies

Component societies include all county medical societies (which may cover one or more counties) heretofore or hereafter chartered by this Association.

Section 5.—Component Society Charters

Charters to component societies may be granted and revoked as hereinafter prescribed, subject to the limitation that only one charter may be outstanding at any one time in any county.

ARTICLE II.—MEMBERSHIP

Section 1.—Classes of Members

The members of this Association shall consist of Active, Associate, Honorary, Retired, Life and Affiliate members.

Section 2.—Membership Qualifications, Rights, Privileges, Duties and Method of Election

The qualifications, rights, privileges, duties, obligations and methods of election of the several classes of membership are as stated in the By-Laws.

ARTICLE III.—GOVERNMENT OF THE ASSOCIATION

Part A.—House of Delegates

Section 1.—Composition

The House of Delegates shall consist of:

(a) Delegates elected by the members of component societies;

(b) Officers of the Association as hereinafter provided; and

(c) Ex officio, without the right to vote, the District Councilors.

Section 2.—Representation

As the By-Laws shall provide, each component society shall be entitled to proportionate representation in the House of Delegates but with a minimum of one delegate.

Section 3.—Alternates

Alternates shall be elected, as specified in the By-Laws, in the same manner as delegates are elected. One alternate shall be seated in place of each delegate absent or disqualified for failure to attend meetings or other cause.

Section 4.—Terms of Delegates and Alternates

Delegates and alternates shall serve for two or three years as each component society may determine. One-half or one-third, as the case may be, of the allowed number shall be elected each year.

Section 5.—Quorum

A majority of the authorized number of delegates shall constitute a quorum.

Section 6.—Functions of the House of Delegates

The House of Delegates shall be the legislative body of the Association and shall exercise such other functions as the By-Laws may prescribe.

Section 7.—Issuance and Revocation of Charters

(a) The House of Delegates shall issue charters to medical societies of a county or combination of counties deemed eligible and which have made proper application therefor.

(b) The House of Delegates may suspend or revoke any such charter, after due notice and proper hearing, for cause. "Cause" shall be considered to be any conduct or action, on the part of any component society, deemed in contravention of the Constitution and By-Laws of the Association or the American Medical Association or their "Principles of Medical Ethics." "Cause" shall further be deemed to be any conduct or action of a component society deemed inimical to the best interests of the Association.

(c) It may act on the withdrawal or secession of any component society from the Association and take such measures as are deemed advisable and proper for reinstatement of any component society which may have withdrawn or had its charter suspended or revoked.

(d) A two-thirds affirmative vote of the delegates present and voting shall be necessary for any action under the provisions of this section.

Section 8.—Sessions of the House of Delegates

In each year there shall be one or more sessions of the House of Delegates as fixed in the By-Laws. Special sessions may be called and held as provided in the By-Laws.

Part B.—Council

Section 9.—Composition

The Council shall consist of:

(a) One Councilor, elected from each district; and

(b) The President, President-Elect, Speaker and Vice-Speaker.

In addition, the Secretary-Treasurer and Editor, ex officio but without the right to vote.

Section 10.—Councilor Districts

There are twelve councilor districts as follows:

District Number One, comprising San Diego County.

District Number Two, comprising Imperial, Orange, Riverside, San Bernardino, Mono and Inyo counties.

District Number Three, comprising that area included in the 1937 city limits of the City of Los Angeles and known as Councilor District 1(g) of the Los Angeles County Medical Association. (If the By-Laws of the Los Angeles County Medical Association are hereafter amended to change the reference therein to the 1937 city limits of the City of Los Angeles to another date, such other date shall automatically be incorporated in this By-Law in lieu of the year 1937.)

District Number Four, comprising the County of Los Angeles except the area included in District Number Three above.

District Number Five, comprising Ventura, Santa Barbara and San Luis Obispo counties.

District Number Six, comprising Kern, Kings, Tulare, Fresno, Madera, Merced and Mariposa counties.

District Number Seven, comprising Monterey, San Benito, Santa Cruz, Santa Clara and San Mateo counties.

District Number Eight, comprising San Francisco County.

District Number Nine, comprising Alameda County.

District Number Ten, comprising Stanislaus, Contra Costa, San Joaquin, Calaveras, Tuolumne, Amador and Alpine counties.

District Number Eleven, comprising Marin, Solano, Napa, Sonoma, Lake, Mendocino, Humboldt and Del Norte counties.

District Number Twelve, comprising Sacramento, Eldorado, Placer, Nevada,. Sierra, Yuba, Sutter, Yolo, Colusa, Glenn, Butte, Plumas, Tehama, Trinity, Shasta, Lassen, Modoc and Siskiyou counties.

Section 11.—Election of Councilors

Councilors shall be elected by vote of the delegates from each district in the manner and at the time specified in the By-Laws.

Section 12.—Councilors: Terms of Office

Councilors shall serve for terms of three (3) years; one-third to be elected in each year.

Section 13.—Council: Powers and Duties

Subject to the provisions of this Constitution, and all resolutions and enactments of the House of Delegates, the Council shall be vested with full and complete power and authority to manage, control, use, invest, reinvest, lease, make contracts in respect of, and concerning, convey, give, grant, transfer or otherwise dispose of all property and assets of whatever kind or nature owned by the Association, and shall also be vested with full and complete power and authority to do and perform all acts and to transact all business for and on behalf of the Association and to manage and conduct all the work and activities of the Association in carrying out the purposes thereof. The Council shall have such additional duties, powers and functions as are prescribed in the By-Laws.

Section 14.—Election of Councilors on Adoption of this Constitution

Upon the adoption of this Constitution, the delegates from each district shall proceed to elect Councilors as follows: At the annual meeting at which this Constitution is adopted, the Councilors of the First, Fourth, Seventh, and Tenth Districts shall be elected for terms of one year each; Councilors of the Second, Fifth, Eighth, and Eleventh Districts shall be elected for terms of two years each; and Councilors of the Third, Sixth, Ninth, and Twelfth Districts shall be elected for terms of three years each. Thereafter, as each term expires, the delegates from the districts shall elect a Councilor to serve for a term of three years.

Upon the adoption of this Constitution and the election of twelve district Councilors, as above provided, the terms of office of the Councilors elected prior to the adoption of this Constitution shall immediately cease and terminate.

ARTICLE IV.—FUNDS, PROPERTY, DUES, ASSESSMENTS AND EXPENDITURES

Section 1.—Annual Dues

At each regular session the House of Delegates shall, by a majority vote, fix the annual dues to be paid by members of the Association for the ensuing calendar year. Dues payable by active members shall be uniform and equal, except that the House of Delegates may reduce dues for certain groups (by general classification) as the By-Laws may expressly permit.

Dues payable by associate members shall be uniform and equal but may be set at not less than one half the regular dues for active members.

Section 2.—Military Service

During any period at which the United States is at war or requires services of doctors of medicine under an universal military training or draft program, annual dues may be reduced or waived by the House of Delegates with respect to those members serving in the Armed Forces of the United States during the whole or any part of any year.

Section 3.—Leaves of Absence

The Council, on recommendation of a component society, may grant leaves of absence to active members who are seriously ill and cannot practice or who leave practice temporarily for postgraduate study or other purposes acceptable to the component society and the Council and during such leave a uniform reduction of dues shall be established by the Council; provided no leave may exceed one year but shall be subject to renewal.

Section 4.—Special Assessments, etc.

Funds may also be raised by any of the following methods: (a) publications of the Association; (b) voluntary contributions; (c) bequests, legacies, devises, and gifts; (d) special assessments levied by the House of Delegates; and (e) in any other manner approved by the House of Delegates. In the event that the House of Delegates levies any special or other assessment than the annual assessment of dues, it may, in the resolution levying the assessment, fix and determine the time within which such assessment must be paid, the class or classes of members of the Association upon whom it is levied, and the penalty, if any, including forfeiture or suspension of membership in this Association or the component society, or both, to result from nonpayment thereof within the time prescribed.

Section 5.—Annual Budget and Expenditures

At each regular session of the House of Delegates, the Council shall submit to it an itemized budget stating the proposed expenditures of the Association for the ensuing year. The budget may be altered or revised by the House of Delegates, but must be adopted by the House before adjournment of the session. After its adoption, no expenditures in excess of the amount of the budget item covering the subject of such expenditures may be made in the year covered by the budget by the Association or any of its officers, agents or employees, unless the Council by a three-fourths vote of all voting members shall first approve such excess expenditure by resolution duly adopted. Recurring items in the budget (fixed expenditures covering more than one year) shall, when first adopted, be binding as to subsequent budgets to the extent of commitments or obligations entered into by the Association within authority granted by the House of Delegates or this Constitution or the By-Laws.

Section 6.—Benevolence Fund

At least $1.00 out of the annual dues paid by each active member of the Association shall be allocated to the Physicians' Benevolence Fund and shall only be used for the purposes as set forth in the By-Laws.

Section 7.—All Funds and Moneys to Be Paid to Secretary-Treasurer and Deposited With Depositary

All funds and moneys received for the Association by any officer or agent thereof shall be promptly paid to the Secretary-Treasurer and by him deposited with a depositary selected as such by the Council.

All depositaries selected by the Council shall be banks or trust companies duly licensed to transact business as such in the State of California.

Section 8.—Membership Interest in Association Property

No person other than an active member in good standing shall have any interest in the property of the Association and the interest of any active member therein shall cease when he ceases to be a member of the Association.

If any active member shall resign or otherwise cease to be an active member of the Association, all of his interest in and to all property of the Association shall cease and such cessation of membership shall operate as a release and assignment to the Association of all the right, title and interest of such member in and to all the property of the Association.

ARTICLE V.—REFERENDUM AND PETITION

Section 1.—Referendum and Petition

The right of referendum and petition shall be as set forth in the By-Laws.

ARTICLE VI.—OFFICERS

Section 1.—Officers

The officers of this Association shall be a President, a President-Elect, a Secretary-Treasurer, a Speaker of the House of Delegates, a Vice-Speaker of the House of Delegates and an Editor.

Section 2.—Powers and Duties of the President-Elect

The President-Elect shall act for the President in his absence or disability, and if the office of President becomes vacant the President-Elect shall then succeed to the Presidency to serve as President for such unexpired term and for the term of one year thereafter.

ARTICLE VII.—SCIENTIFIC ASSEMBLY

Section 1.—Objects

The Scientific Assembly of the California Medical Association is the convocation of its members for the presentation and discussion of subjects pertaining to the science and art of medicine.

Section 2.—Sections

The Scientific Assembly shall be divided into sections, each section representing that branch of medicine described in its title.

Section 3.—Creation of New Sections

New sections may be created or existing sections discontinued by the House of Delegates. The Scientific Assembly and its sections shall be conducted in accordance with the provisions of this Constitution and the By-Laws, and such other instructions by the House of Delegates or the Council as may not be in conflict therewith.

ARTICLE VIII.—MISCELLANEOUS

Section 1.—Incorporation

(a) To aid in carrying out the objects of the Association, the House of Delegates at any meeting of any regular or special session thereof may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to cause the formation and organization of a non-profit corporation under the laws of the State of California, without capital stock, with such incorporators, name, purposes, objects, principal place of business, term, number of directors and directors to serve for the first year and until their successors are elected and have accepted office, and with such provisions regarding the voting power and property rights and interests of the members of the corporation and such further provisions in the Articles of Incorporation thereof, and with By-Laws and composed of such members representing this Association as the Council shall prescribe, fix and determine. The House of Delegates may at its option in connection with the granting and giving of such authority, power and direction to the Council, prescribe, fix and determine any or all of such matters pertaining to the said corporation, its Articles of Incorporation and any provision thereof, By-Laws and membership, and its action thereon shall bind the Council; and the House of Delegates at any meeting of any regular or special session thereof may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to grant, assign, transfer, convey and deliver, or cause to be granted, assigned, transferred, conveyed and delivered to the said corporation upon the formation thereof without any consideration therefor, any property, real or personal, of the Association, which authorization, power and direction may be given prior or subsequent to the formation and organization of said corporation.

(b) To further aid in carrying out the objects of the Association, the House of Delegates at any meeting at any regular or special session thereof may, by a two-thirds vote of the membership thereof present and acting, authorize, empower and direct the Council to cause the formation and organization of one or more corporations under the laws of the State of California with such incorporators, name, purposes, county where the principal office for the transaction of business is to be located, first directors, the total number of shares, the aggregate par value, if any, of all shares, classes of shares, par value of any shares having par value, statement of the provisions, privileges and restrictions granted or imposed upon the respective classes of shares, or if the corporation be formed without capital stock the authorized number and qualifications of its voting and other rights of each class of members and the liability of each and all classes, to dues or assessments, and with such further provisions in the articles of incorporation thereof and with such by-laws as the Council shall prescribe, fix and determine; and the House of Delegates at any meeting of any regular or special session thereof may, by a vote of two-thirds of the members thereof present and acting, authorize, empower and direct the Council to grant, assign, transfer, convey or deliver or cause to be granted, assigned, transferred, conveyed or delivered to any of such corporations upon the formation thereof or to applicants for health and accident or other insurance in or from any of said corporations at or prior to the formation thereof without any consideration therefor, such funds and property, real or personal, of this Association as the House of Delegates shall from time to time authorize or ratify.

Section 2.—Seal

The Association shall have an Association seal consisting of a circle having on the circumference the words "California Medical Association, Eureka, 1856," with such further emblems, figures and words as the House of Delegates, on recommendation from the Council, shall prescribe.

The power to change the seal shall rest with the House of Delegates.

Section 3.—Amendments

Any member of the House of Delegates at any meeting of any session, other than a special session, thereof may present an amendment or amendments to any article or articles or any section or sections of any article or articles of this Constitution.

Such proposed amendment or amendments shall be in writing and shall be filed with the Secretary and shall thereafter be published at least twice in separate issues of the official journal of this Association prior to the next session of the House of Delegates.

At the said next session, other than a special session, of the House of Delegates, such proposed amendment or amendments shall be submitted to the House of Delegates, for consideration at any meeting of the House of Delegates during that session, and if two-thirds of the Delegates present and voting vote in favor thereof, the same shall be adopted.

Section 4.—Repeal of All Provisions of Existing Constitution

All articles and all sections and all parts of all articles of the existing Constitution are hereby repealed.

BY-LAWS

CHAPTER I.—COMPONENT SOCIETIES

Section 1.—Component Society Charters

The charter of each component society shall provide that all the provisions of the Constitution and By-Laws of this Association in force at the time of the issuance of such charter, together with all amendments to either thereof thereafter adopted, in so far as the same are applicable, shall be an integral part of the Constitution and By-Laws of the component society to which the charter is issued and that the terms and provisions thereof shall control and govern such component society, the officers and members thereof, and that the constitution and by-laws of the component society shall not be amended in any way to conflict or be inconsistent with the Constitution and By-Laws of this Association. Each charter shall be signed by the President and the Secretary-Treasurer of this Association.

Section 2.—Revocation of Component Society Charters

The charter of any component society may be revoked by the House of Delegates if, after the filing with the Secretary-Treasurer of this Association of a written petition or protest signed either by the Chairman of the Council pursuant to resolution adopted by the Council by the affirmative vote of two-thirds of all the members thereof, and after due notice of hearing and after hearing thereof, the House of Delegates by a two-thirds vote of its members decides that the provisions of the Constitution or By-Laws of this Association or of the charter of such society have been breached by such society or that such society has committed acts or conducted itself in conflict with the Constitution, By-Laws or purposes of this Association to such extent as to make such revocation desirable in the best interests of this Association.

Section 3.—Component Society Sections

(a) *Geographical or Specialty Sections.* A component society may authorize the formation and existence of branch geographical or specialty sections for scientific investigation and work only, and the members of such geographical sections or specialty sections must be members of such component society.

(b) *Members in Sections to Be Members of Respective Component Societies.* No geographical or specialty section shall be permitted to have any classes of members which classes in whole or in part include non-members of the component society of which any such geographical or specialty section is a branch or subdivision; provided that nothing in this section shall be construed as limiting the guest privileges of such non-members at meetings of such section.

Section 4.—Component Societies Exclusive Judges of Qualifications of Applicants for Membership

Each component society shall, subject to the minimum requirements for eligibility as provided herein, determine the qualifications for membership therein and shall be the sole judge of the qualifications of applicants for such membership.

A member must not practice or claim to practice, support, cooperate with or in any other way endorse any exclusive or sectarian system of medicine. He shall be honorable and ethical in his conduct and shall subscribe to the principles of medical ethics of the American Medical Association and to such as may from time to time be adopted by the California Medical Association, and shall recognize the authorized officers of his component society and of this Association as the proper authority to interpret any doubtful points in ethics.

Every applicant for membership in a component society shall fill out and sign in duplicate the application blanks provided by the society, which prescribe the necessary qualifications for membership. One copy of each such application shall be promptly forwarded to the office of this Association.

Section 5.—Component Society Rosters of Members and of Licensed Physicians in Counties

The secretary of each component society shall keep a roster of its members and of the non-affiliated registered physicians of the county, on which shall be shown the full name, address, school and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. In keeping such roster the component society's secretary shall note and at once notify the Secretary-Treasurer of this Association of any changes in the personnel of the profession, by death, by resignation, or by removal to or from the county, and in making his annual report he shall endeavor to account for every physician who has lived in the county during the year. The secretary of each component society shall make a monthly report to the Secretary-Treasurer of this Association upon such forms and including such subjects as are herein provided, and as the Council may authorize.

CHAPTER II.—MEMBERSHIP

Section 1.—What Constitutes Membership

The name of a doctor of medicine on the official roster of this Association, after it has been properly reported by the secretary of his component society, and after the dues or other assessments due this Association shall have been paid by the component society for each such member according to the class of membership held by each component society member, shall be prima facie evidence of membership, and of his right to register at the Annual Session.

Section 2.—Qualifications for Membership and Method of Election Thereto

(a) *Active Members.* Active members shall comprise all active members of all the component societies. No person shall be eligible for election to active membership in a component society unless he shall hold the degree of Doctor of Medicine issued to him by an institution of learning, accredited at the time of conferring such degree by the American Medical Association or the Association of American Medical Colleges. He must also hold an unrevoked license to practice medicine and surgery in the State of California; provided, however, that subject to the minimum qualifications prescribed by this Constitution and the By-Laws, each component society shall be the exclusive judge of the qualifications of the members thereof.

(b) *Associate Members.* Associate members may be elected by the Council, upon recommendation of the component society of the county in which the associate member maintains his principal office of business, from those doctors of medicine engaged in teaching or research work or holding positions in the Federal Service or otherwise, and from other persons engaged in medical teaching or research or other scientific work contributing to medicine and the public health.

(c) *Retired Members.* The Council, on recommendation of any component society, may grant retired membership to those active members who have ceased the practice of medicine for reasons satisfactory to such component society and the Council, and who shall have been active members of the Association for a total of ten years prior thereto. Retired membership shall endure as long as the retired member does not engage in the practice of medicine; but in the event that a member classified as retired resumes the active practice of medicine, such resumption of practice shall automatically terminate retired membership and reestablish active membership. Upon resumption of active practice by any retired member, the secretary of his component society shall transfer such member from the retired classification to the active classification, and notify the Secretary of this Association, who shall do likewise with respect to the membership rolls of this Association.

(d) *Honorary Members.* The House of Delegates on recommendation by the Council may elect as honorary members any persons distinguished for their services or attainments as doctors of medicine or in the field of public health, or for research or other scientific work contributing to medicine.

(e) *Life Members.* Life members of the California Medical Association may be elected by the Council on the recommendation of any component county society from those active members thereof who (1) have been active members of this Association continuously for a period of twenty (20) years or more and are more than fifty (50) but less than sixty (60) years of age and have tendered to this Association a life membership fee of one hundred fifty dollars ($150.00) or such other sum as the House of Delegates may from time to time determine; or (2) have been active members of this Association continuously for twenty-five (25) years or more and are more than sixty (60) but less than sixty-five (65) years of age and have tendered to this Association a life membership fee of one hundred dollars ($100.00) or such other sum as the House of Delegates may from time to time determine; or (3) have been active members of this Association continuously for a period of twenty-five (25) years or more, are more than sixty-five (65) but less than seventy (70) years of age and have tendered to this Association a life membership fee of fifty dollars ($50.00) or such other sum as the House of Delegates may from time to time determine; or (4) have been active members of this Association continuously for twenty-five (25) years or more and are more than seventy (70) years of age. Those active members falling within Classification 4 need not be recommended by any component county society but are eligible to life membership on direct application to the Council. The Council may not elect to life membership any active member whose membership has not been continuous or who has ever been censured, suspended or expelled from the American Medical Association, this Association, any state medical association which is a constituent unit of the American Medical Association, or any county medical society which is a component part of this Association or a unit of any other state medical association.

(f) *Affiliate Members.* The House of Delegates may, from time to time, establish special and limited classes of membership in this Association for internes, junior and senior residents, or house officers, practicing in hospitals in this state. In establishing such special membership for internes, junior and senior residents, or house officers, the House of Delegates may determine the qualifications, duration and privileges of such membership.

The House of Delegates may also from time to time provide for affiliation with the California Medical Association, on an affiliate basis, of undergraduate medical students attending medical schools in this state. Unless the House of Delegates determines to the contrary, such special or affiliate members shall pay uniform minimum dues as determined by the Council.

Section 3.—Rights and Privileges of Membership

(a) *Active Members.* Subject to the provisions of this Constitution and By-Laws, all active members shall have the right of suffrage and all other rights and privileges of the Association.

(b) *Associate Members.* Subject to this Constitution and By-Laws, associate members shall have all of the rights and privileges of active members, except the right to vote or hold office.

(c) *Retired Members.* Subject to this Constitution and By-Laws, retired members shall be entitled to receive publications of the Association at such rates as the Council from time to time may determine. Retired members shall not have the right to vote or to hold office. Retired members shall not be required to pay dues unless the House of Delegates determines otherwise, and then the rate of dues shall be fixed by the House of Delegates.

(d) *Honorary Members.* Subject to this Constitution and By-Laws, honorary members shall not be obliged to pay dues and shall not have the right to vote or to hold office.

(e) *Life Members.* Life members shall not be obliged to pay dues and shall not be liable for assessments of any kind or nature. If active membership in good standing is maintained in his component society, each life member shall have the right to vote, to hold office, and shall have all other rights and privileges of the Association. If active membership in his component society is not maintained, the rights and privileges of a life member shall be those of a retired member.

(f) *Affiliate Members.* Affiliate members shall not have the right to vote or hold office, and may be elected to such membership for specified terms and subject to continuance of student, interne or hospital resident status, but shall have all other privileges of membership.

(g) *Additional Classes of Membership.* Subject to this Constitution and By-Laws, the House of Delegates may from time to time establish special and limited classes of membership and fix the dues, qualifications, duration and privileges of such membership.

Section 4.—Termination of Membership

(a) *By Expulsion from Component Societies.* Expulsion from any component society, after due proceedings in accordance with these By-Laws, upon becoming final terminates all the rights and privileges in this Association of the member so expelled.

(b) *By Failure to Pay Dues.* If the annual assessment of dues, payable to this Association by any member of this Association, is not paid on or before April 1 of any year, such member shall automatically lose his membership in this Association as of April 1 of such year. The Council of this Association, in its discretion, upon payment of such unpaid dues, and any other assessments or dues accruing thereafter, may at any time reinstate such member.

(c) *By Revocation of Physician and Surgeon's Certificate.* Any member whose license to practice medicine and surgery in the State of California is revoked shall, upon receipt of written evidence of such revocation by the Secretary of this Association, thereupon cease to be a member of this association.

(d) *Acts and Conduct Subjecting Member to Censure, Suspension or Expulsion by Component Society.* Any member of a component society who has been adjudged guilty of a criminal offense involving moral turpitude, or who has been duly adjudged guilty by his society, in accordance with the procedural requirements of these By-Laws, of gross misconduct as a physician or a surgeon or of a violation of any of the provisions of the constitution or by-laws or principles of professional conduct of his society or of the principles of medical ethics promulgated from time to time by this Association or by the American Medical Association, shall be subject to censure, suspension or expulsion from his society by such component society.

Section 5.—Disciplinary Procedure

Disciplinary Procedure for Component Societies. The procedure to be followed by each component society with respect to the censure, suspension or expulsion of a member shall be:

(1) *Charges; Formal Requirements; a Formal Charge Must First Be Made.* Such charge must be in writing, signed by the accuser, and if made by a person other than a member of the society must be sworn to before an officer of the State of California authorized to administer oaths. Charges must state the acts or conduct complained of with reasonable particularity.

(2) *Charges; Filing; Secretary's Duties; Presentation to Board of Directors (or Grievance Committee).* Charges must be filed with the secretary of the accused member's component society. At the first regular or special meeting of the Board of Directors (or other governing body, whether called Council, Board of Trustees, Executive Committee, or any other name, all of which are herein included in the term "Board of Directors") of such component society held after charges are filed, the secretary must present said charges to the Board. The Board of Directors shall then or at any adjournment of said meeting, but not more than thirty days after the date of such regular or special meeting, consider the charges, and in its discretion determine whether or not further proceedings shall be conducted. If the Board determines that no further action shall be taken, the charges shall be dismissed.

If a component society has no board of directors and more than ten members, its members must, at a regular meeting of the society, elect a grievance committee of not less than five (5) active members in good standing; two members shall be designated by the society to serve for a period of one year, two members shall be designated to serve for a period of two years, and one member shall be designated to serve for a period of three years. At the expiration of the terms of office of the respective members of such committee, successors shall be elected in like manner to serve for a period of three years each. Such grievance committee shall exercise all the power and perform all the duties herein conferred upon boards of directors in the manner and within the times herein provided. If a society has less than eleven members, the entire society, exclusive of the accuser and accused, shall constitute the grievance committee. All references herein to board of directors shall be deemed to include such grievance committees, and component societies of ten members or less.

(3) *Service of Charge Upon Accused.* If the Board of Directors determines that further action, with respect to said charges, shall be taken, the Board must, within fifteen (15) days after such decision, cause a copy of the charges to be served upon the accused by personally delivering a copy thereof to him, or by depositing a copy thereof in the United States mail, registered and addressed to the accused either at his last known office or at his last known residence.

(4) *Time and Place for Hearing; Service of Notice Thereof.* The Board of Directors shall, at said meeting at which its decision to proceed is made, fix a time and place for a hearing of said charges. Written notice of the time and place set for the hearing shall be served upon the accused within fifteen (15) days by personal delivery or registered mail as aforesaid.

The time so set for a hearing shall be not less than fifteen (15) days after the accused has been served as aforesaid, with a copy of the charges and with the notice of the time and place set for the hearing; said hearing must be held within the county in which the accused holds his county society membership. The hearing before the Board of Directors must actually commence within six months from the date of the filing of written charges. Failure to comply with this requirement shall constitute an automatic dismissal of the charges.

(5) *Right of Accused to Answer; Time to Answer; Formal Requirements.* The accused may, not less than five (5) days before the time set for a hearing, answer said charges. The answer shall be in writing and the original and three copies shall be filed with the secretary of the society; provided, however, that the failure of the accused to answer shall not be deemed to be an admission of the truth of the charges or a waiver of the accused's right to a hearing with respect to said charges.

(6) *Rules Governing Hearing; Duties of Referee of Society; Advice as to Procedure Only.* The Board of Directors shall give ample opportunity both to the accuser and the accused to be heard in person, and to present all testimony, evidence, or proofs which the accuser or the accused may deem necessary, provided that the Board may reject all testimony, evidence, or proofs, which in the judgment of the Board are immaterial, irrelevant or unnecessarily repetitious.

Either the Council or the Executive Committee of the California Medical Association, whenever it shall come to the attention of either thereof that a disciplinary proceeding is pending before any component society, may of its own motion, and shall, upon the request of such component society or of the member or members thereof the subject of any such disciplinary proceeding, appoint a referee who may, but need not be, a member of the California Medical Association, and shall cause the Secretary of the California Medical Association to notify the secretary of such component society of such appointment. The referee so appointed shall preside at the hearing of said charges and shall make all decisions concerning the admission or rejection of testimony or other evidence and procedure. The referee shall not, however, have any voice nor participate in any manner in the determination by the Board of Directors of the disposition of the charges. During the hearing the referee shall perform all duties normally performed by the presiding officer of the Board of Directors.

(7) *Record of Proceedings; Shorthand Reporter; Duty of Secretary to Preserve Board Records; Right of Accused to Copy.* The secretary shall preserve the original of said charges with a certificate of personal delivery or of mailing of a copy or copies thereof, as the case may be, the original notice of the time and place set for the hearing with a certificate of personal delivery or of mailing of a copy or copies thereof, as the case may be, and the original of the answer filed by any member accused if an answer be filed. At the hearing, the Board of Directors shall, at the expense of the society, employ a competent shorthand reporter to record and transcribe into typewriting testimony adduced on behalf of the accuser and the accused and all rulings made. The original charges with certificate of service thereof, the original notice of time and place for hearing with certificate of service thereof, the answer or answers, if any be filed, all documentary evidence introduced at the hearing, the typewritten transcript of the testimony and the written decision of the Board of Directors shall constitute the record of the entire proceedings. The Secretary shall, upon receipt from accused of a sum sufficient to defray the cost thereof, cause a copy or copies of such record to be transcribed, certified and furnished to the accused.

(8) *Decision of Board; When Must Be Written; Rules Governing Vote of Board.* The Board of Directors, after having given the accuser and the accused member full opportunity to be heard, shall conclude the hearing and shall render its decision in writing not more than thirty (30) days thereafter. Hearing shall include any oral arguments and the filing and consideration of any written briefs. The Board of Directors by a two-thirds affirmative vote of all the eligible members of the Board present and voting may exonerate or may censure, suspend or expel the accused member as the facts in its opinion may justify.

The decision of the Board of Directors may be expressed in resolution adopted by said vote. The decision may not contain an opinion and need only be signed by the secretary or the acting secretary of the component society.

The failure of at least two-thirds of all the members of the Board of Directors present and voting to agree upon the disposition of the charges shall act automatically as a dismissal of the same. No member of the Board of Directors not present at the said hearings for the entire time thereof shall be entitled to vote with respect to the disposition of the charges.

(9) *Suspension; Maximum Period; Status of Suspended Member.* If the Board of Directors shall determine to suspend an accused member, the term of such suspension shall be within the discretion of the Board, provided that in no case shall a member be suspended for a period greater than one year. A suspended member shall have no rights or privileges in the society, provided that at the expiration of the period of suspension such suspended member shall not be reinstated to membership in good standing until he applies for reinstatement and pays all dues accrued during said period of suspension.

(10) *(a) Board's Decision; Secretary to Send Copies.* Within ten (10) days after the decision of

the Board of Directors, the secretary of the society shall transmit a copy of the decision to the Board, to the accused member or members and to the Secretary of this Association.

(b) Board's Decision Final; Subject to Appeal. The action of the Board of Directors of a component society shall be final, subject only to appeal to the Council of the California Medical Association in such cases as are provided in these By-Laws.

The decision of the Board of Directors shall not become effective until the expiration of ten days after time during which an appeal may be taken to the Council of this Association. Filing an appeal with the Secretary of this Association shall automatically stay the execution of the decision of the Board of Directors of the component society until written notice of the action of the Council of this Association with respect to appeal has been received by the secretary of the component society from which the appeal was taken.

(c) Technical Rules of Evidence Not to Govern Disciplinary Hearings. All hearings with respect to the disposition of charges against a member of a component society shall be held and conducted in such manner as to ascertain all the facts fairly to the accuser and accused, eliminating all formal or technical rules and requirements which ordinarily pertain to judicial proceedings.

(d) Members Agree That No Cause of Action Shall Accrue. Any person so charged, censured, suspended, or expelled shall have no claim or cause of action against this Association, a component society or any member, director, councilor or officer, thereof by reason of such charges, or the hearing or the consideration thereof or censure, suspension or expulsion therefor.

(e) Expelled Members; Right to Apply for Membership; When Accrues. Any person whose membership has been involuntarily terminated in a component society by reason of violation of these By-Laws may apply for membership after the expiration of one year from the date said membership was terminated, and such application shall be considered in the same manner as a new application for membership.

Section 6.—Procedure for Appeal to Council

A member of a component society censured, suspended or expelled by his county society may appeal from the action of such component society to the Council of this Association within the period of two months succeeding the date of such censure, suspension, or expulsion. Appeals shall be in writing and be filed within the said period of two months in the office of the Secretary of this Association. Said appeal shall be accompanied by a copy of the record of the entire proceedings before the component society duly certified by its secretary, provided the Chairman of the Council may, in his discretion, extend the time of the appellant to file said record. Upon the filing of an appeal the secretary shall present it to the first subsequent meeting of the Executive Committee or the Council. Appeals shall be heard by the Council only after reasonable notice of not less than ten (10) days in writing of the time and place of the hearing of the appeal has been given to the appellant member and the president and secretary of the component society as provided in Section 4 hereof.

Section 7.—Rules Governing Appeals

In hearing appeals, the Council shall review all questions of procedure, and may, in its discretion, review the evidence contained in the record of the original proceedings held before the Board of Directors of the component society. The Council may make findings of fact contrary to, or in addition to, those made by said Board of Directors. Such findings may be based on the evidence adduced before said Board of Directors, either with or without the taking of evidence by the Council. The Council shall use any lawful means which in its judgment will best and most fairly present all the facts involved. The Council may, for the purpose of making such findings or for other purpose in the interest of justice, take additional evidence of or concerning facts material to the questions involved, or may, for such purpose, appoint a committee of its members or any notary public to act as referees or referee for the taking of such additional evidence.

Such referee or referees shall render a report in writing to the Council, which report shall contain a clear statement of the facts found by the referee or referees from the testimony or evidence adduced.

The Council may affirm, reverse or modify the decision of the Board of Directors or make such other disposition of the proceedings as it may deem proper.

In every case of an appeal the individual councilors and the Council, through a committee thereof, prior to any hearing being held upon the appeal, shall exert all proper efforts at conciliation and compromise.

This Association may be represented by its attorney to advise the Council upon procedural questions only.

The decision of the Council shall be final and bind the appellant member and the component society.

Section 8.—Registration at Annual Sessions Necessary for Participation Therein

Each member in attendance at any Session shall register, after his right to membership has been verified by reference to the records of this Association. No member shall take part in any of the proceedings of any Session until he has complied with the provisions of this section of the By-Laws.

Section 9.—Component Society Secretaries to Furnish Date on Applications for Membership

The secretary of each component society, on forms or blanks supplied by this Association for that purpose, shall notify the Secretary-Treasurer of this Association in writing, as soon as possible, of each application for membership in such component society, with the name, address, and all other particulars regarding the applicant known to such secretary.

Section 10.—Component Society Membership

Lists to Be Sent to Secretary-Treasurer. It shall be the duty of the secretary of each component society to furnish the Secretary-Treasurer before the first day of March of each year a list of names and addresses of all members in good standing on the first day of January of each year, and to notify in writing the Secretary-Treasurer of this Association monthly of all changes in membership of the component society, with corresponding changes of address.

Section 11.—Membership Where No Component Society Exists

Any Doctor of Medicine residing in an area in which there is no component society may apply for membership in the component society most convenient to the area in which he practices medicine, and if otherwise qualified he may be elected to membership therein.

Section 12.—Membership Where Major Office and Residence Are in Different Component Society Areas

A Doctor of Medicine may apply for membership only to that component society whose charter covers the area in which his major office for professional practice is located; provided that a Doctor of Medicine who resides in one county and practices in another may apply for membership to the component society whose charter covers the area in which his residence is located, if both such component society and the component society of the area in which his major office is located approve.

Section 13.—Membership as Affected by Transfer of Location of Office

A member who changes his office from the county through whose component county society he holds membership in this Association, to another county in which there is a component society, is eligible to membership in the component society of his new location on the presentation of a transfer card, and satisfactory evidence that his dues have been paid in full in the component society in which he holds membership; provided, however, that no evidence which would disqualify him for membership exists.

He shall forfeit his membership in this Association one year after such change of location of practice unless after proper application he is elected to membership in the society of the county to which he has moved.

Any member who has heretofore changed his location of practice as aforesaid shall have one year after the date of adoption hereof to comply with the provisions of this section.

Section 14.—Transfer Cards

When a member in good standing in a component society moves to another county or other jurisdiction in this State he shall, on request, be given a transfer card, without cost. He must assume such financial obligations as shall be deemed proper by the component society to which he is transferred, and to which he makes application for membership by transfer.

CHAPTER III.—HOUSE OF DELEGATES

Section 1.—Secretaries of Component Societies to Furnish Lists of Delegates and Alternates: Election and Lists

Each component society shall elect a delegate and one alternate for such delegate in an aggregate number of delegates and alternates equal to the total number of delegates and alternates to which the component society is entitled. At least sixty days prior to the next scheduled session, the secretary of each component society shall forward to the Secretary-Treasurer of the Association, on forms provided by the Association, the names and addresses of each delegate and his alternate elected by such component society, and shall certify thereon the dates of election and expiration of terms of service of each delegate and his alternate.

Failure to conform to this provision shall constitute grounds for disqualification of the delegation in default for the scheduled session, at the discretion of the House of Delegates.

Section 2.—Representation

Each component society shall be entitled to one delegate for every one hundred (100) active members, or fraction thereof, as of the first day of the preceding November.

Section 3.—Limitations on Seating of Delegates

Only duly elected delegates or their elected alternates may be seated at any session of the House of Delegates unless the Secretary of the Association has been given due notice of substitution at least fifteen (15) days in advance of the session.

Section 4.—Disqualification of Delegates or Alternates for Absence From a Session

Any delegate absent without good cause from two or more consecutive meetings of the House of Delegates, and who has failed to give fifteen days' notice to the Secretary of the Association of his inability to be present, shall thereupon be disqualified as a delegate and, in addition, ineligible for re-election as a delegate or alternate for three years immediately succeeding the expiration of his term; except that the Committee on Credentials may excuse absence on presentation of good cause therefor.

Section 5.—Notification of Delegates

The Secretary of each component society promptly shall notify in writing each delegate and alternate immediately after his election to such office, and shall expressly direct each delegate's and alternate's attention to the provisions of Section 5 above.

Section 6.—Qualifications of Delegates and Alternates

(a) At least three (3) years' active membership in good standing in the component society immediately preceding election shall be required for election as delegate or alternate.

(b) Only duly elected delegates, or properly qualified alternates, may be seated with the right to vote.

(c) No District Councilor may be elected as a delegate or alternate by a component society.

Section 7.—Sessions and Meetings

(a) In each year there shall be two sessions of the House of Delegates; the time and place of such sessions to be determined by the Council as far as possible in advance and notice thereof published in the Journal of the Association. One of these sessions shall be held in the first six months of each calendar year and is designated the Regular Session; the other shall be held in the last six months of each calendar year and is designated the Interim Session.

(b) In addition to regular sessions, special meetings of the House of Delegates may be called at any regular or special meeting of the Council, by a two-thirds vote of all the members of the Council, or by written call stating the object of the meeting, filed with the Secretary in the office of the Association and signed by one-half or more of the members of the House of Delegates. Upon the filing of such call with the Secretary, the Council shall within thirty (30) days thereafter fix the time and place for the holding of such special meeting and cause written notice thereof stating the object of the meeting to be sent by United States mail, postage fully prepaid, to each member of the House of Delegates, addressed to him at his office or place of residence, as shown by the records of the Secretary's office, at least fifteen (15) days prior to the date of meeting.

(c) Officers of the Association shall be elected at the regular session.

(d) Resolutions and other new business may be introduced at either the Regular Session or the Interim Session but shall not be acted upon until the next Regular or Interim Session, provided, however, that emergency measures may be acted upon at the session in which they are introduced but shall require a two-thirds vote for passage.

Section 8.—Division of Scientific Work

The House of Delegates, either upon recommendation of the Council or on its own initiative, shall provide for division of the scientific work of the Association among appropriate sections and assemblies.

Section 9.—House of Delegates Committee

Prior to or at the commencement of each regular session the Speaker of the House shall appoint from the members thereof the following committees:

1. A Committee on Credentials,
2. A Reference Committee on Finance, to review the Reports of the Secretary-Treasurer and Executive Secretary and to study and make recommendations to the House of Delegates on the budget submitted by the Council and the amount of dues for the ensuing year.
3. A Reference Committee on the reports of Officers, Council, Standing and Special Committees, and
4. Two or more Reference Committees on resolutions, amendments to the Constitution and By-Laws, and new and miscellaneous business (the Speaker may allocate amongst these committees all business properly referable to them).

Section 10.—Membership of Credentials and Reference Committee

Each of the aforesaid committees shall consist of three members, the chairman of each to be designated by the Speaker.

The Speaker, the House concurring, shall refer said reports, resolutions, and business to the respective Reference Committees, but may allocate among them any of said reports, resolutions or portions thereof, and other business, to avoid duplication and to expedite the business of the House of Delegates.

Each Reference Committee shall prepare a written report dealing with and making recommendations on all matters submitted to it. In those instances in which resolutions or other matters remain before a Reference Committee between meetings of the House of Delegates, copies of such resolutions or other matters and the recommendations of the committee thereon shall be mailed or delivered by the Secretary to each elected Delegate and Alternate at least thirty days (or if less than thirty days intervenes between meetings, as early as possible) prior to the meeting of the House of Delegates at which such resolutions or other matters and recommendations concerning them are to be considered. The report of each committee may be acted upon as a whole or section by section, as the House may determine.

Section 11.—Special Committees of House of Delegates

The Speaker, the House of Delegates concurring, shall have the right to appoint special committees for special work. All committees of the House of Delegates shall present their reports to the House of Delegates in writing.

Section 12.—Duties of Credentials Committee

The Secretary of the Association shall supply the Committee on Credentials with the necessary information concerning the membership of the House of Delegates.

The Secretary shall give this committee a list of component societies, showing the total membership as of November 1 of the preceding year. This committee shall ask each delegate and alternate to present his written credentials, but shall accept the official written list submitted by the secretary of any component society; provided that such written list be sent to the Secretary of the Association at least fifteen days before the beginning of the annual session.

The Committee shall make a written report to the House of Delegates of the delegates and alternates entitled to membership therein.

Section 13.—Delegates to the American Medical Association

The House of Delegates shall elect delegates and alternates to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that organization.

Section 14.—Special Committees Appointed by House of Delegates

The House of Delegates shall have authority to appoint committees for special purposes from among members of the Association who may or may not be members of the House of Delegates. Such committees shall report in writing to the House of Delegates; and the members, the House concurring, may participate in the debate on their reports.

CHAPTER IV.—COUNCIL

Section 1.—Auditing Committee of Council

The Chairman of the Council, subject to its approval, shall appoint an auditing committee of three members, designating one of the members as its chairman.

The Auditing Committee shall inspect all bills and claims against the Association, and no bill or claim shall be paid except upon voucher or draft having the approval of at least two of the three members of the Auditing Committee; provided, however, that any bill or claim may be paid without the approval of any member of the Auditing Committee by a majority vote or written approval of a majority of all the members of the Executive Committee.

Section 2.—Executive Committee of Council

The Executive Committee shall consist of the President, President-Elect, Chairman of the Council, Chairman of the Auditing Committee, and one other member of the Council (elected by the Council at its organization meeting each year). The Secretary-Treasurer and Editor shall be members ex officio, but without the right to vote. The organization, duties and powers of the Executive Committee shall be as provided in the By-Laws.

Section 3.—Council: Organization

At the first meeting of the Council held after the adjournment of the last meeting of the House of Delegates at the regular session of the Association, the Council shall organize by the election of one of the Councilors as Chairman of the Council, who shall serve as such up to the first Council meeting held after the adjournment of the last meeting of the House of Delegates of the next succeeding regular annual session of the Association; and a Vice-Chairman who shall hold office for the same term, and who, in the absence of the Chairman, shall perform the duties of the Chairman. The Secretary-Treasurer of the Association shall serve as the secretary of the Council.

Section 4.—Duties of District Councilors

Each District Councilor shall be organizer, peacemaker and censor for his district.

(a) *Visitation of Component Societies; and Report Thereon.* He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, of inquiring into the condition of the profession, and of maintaining touch with the activities of the component societies of his district. He shall in writing make an annual report of this work and of the condition of the profession of each county in his district to the Council, which shall take such action thereon as it may deem best.

(b) *Expenses of Councilors and Officers.* Councilors and officers shall be allowed railroad fare or mileage not exceeding 5 cents a mile, plus an allowance for maintenance expense of ten dollars a day, while absent from their places of residence; (a) in attending association, district or county society meetings; (b) meetings of committees of the Association; (c) authorized councilor or officer visits to county societies; (d) and otherwise when on official business, authorized or approved by the Council.

Section 5.—Mail Ballot

The Chairman of the Council, at any time, may direct the Secretary to submit any urgent matter or question to the members of the Council by mail ballot, the question or proposition being prepared through conference of the Secretary with the Chairman of the Council and the Chairman of the Executive Committee; and the vote of two-thirds of the members upon such question by mail or telegraph shall be binding upon the Council.

Section 6.—Registry

The Secretary-Treasurer, in writing, shall request each Councilor to register his address where he desires all notices to be sent to him by mail or telegram.

Section 7.—Order of Business

At meetings of the Council, business shall be transacted as the Council may determine from time to time by resolution.

The Council shall provide and fix the order of business of the House of Delegates at each session, provided that the House of Delegates may change the order of business by a majority vote.

Section 8.—Preparation of Budget; Annual Assessment

The Auditing Committee, prior to December 1 of any year, shall submit to the Executive Committee, for consideration at its December meeting, a budget under which the Association shall work in the fiscal year following the next annual session.

The Executive Committee, after consideration of the Auditing Committee's proposed budget, shall submit the same to the Council, prior to the spring meeting of the Council, with a report of its own containing suggested changes, additions, or comments.

The Council in turn shall consider the two proposed budgets so submitted, and shall then make a final draft of a proposed budget for the Association, to be submitted to the House of Delegates at the next annual session.

The Council shall recommend to the House of Delegates the amount of the annual dues or assessments of each member of the Association.

Section 9.—Committee on Arrangements for Regular and Interim Sessions

(a) *Appointment and Duties.* The Chairman of the Council, subject to the approval of the Council, shall, at least six months before each regular session, appoint a Committee on Arrangements for the regular and interim sessions of the ensuing year, one member thereof being designated as the general chairman. This committee shall consist of five members.

The Secretary-Treasurer of the Association shall be ex officio a member of this committee.

This committee shall have charge of all local arrangements not otherwise provided for.

The terms of office of members of this committee shall expire when the succeeding committee on arrangements is appointed.

As the local Committee on Arrangements this committee shall provide suitable meeting places and shall have general charge of all local arrangements. The committee shall have power to appoint local advisory members and subcommittees to aid in its work.

(b) *Commercial Exhibit.* The Council shall decide what portion of the income from commercial exhibits or other convention services shall go to the local Committee on Arrangements. The location and rules for the commercial exhibits and other accessory annual session activities shall be subject to the approval of the Council.

(c) *Local Convention Expenses.* The Council shall decide what portion of the local expenses shall be borne by the Association.

(d) *Report on Committee on Arrangements.* The Committee on Arrangements shall make and file with the Secretary-Treasurer of the Association an itemized, detailed report of all of its receipts and disbursements, and shall remit any moneys due the Association remaining in its possession, to the Secretary-Treasurer.

Section 10.—Offices

The Council shall provide and secure such offices for the Association as may be required to conduct its activities and business properly.

Section 11.—Executive or Field Secretaries or Representatives

The Council may employ one or more Executive or Field Secretaries or Representatives, who need not be physicians nor members of the Association. The duties of such a representative or representatives, if appointed, shall be determined by the Council by resolution.

Section 12.—Legal Counsel

The Council at its annual organization meeting shall appoint one or more legal advisors, giving each such title as may be deemed proper. It shall fix the amount of retainer and other fees. By resolution it shall indicate what duties shall be assigned to each advisor. The Council shall appoint such attorneys-at-law licensed in California at its annual organization meeting.

The Council shall have the right to request the attendance of Counsel of the Association at any meetings at which it might desire his presence and advice, and at such meetings he shall call the attention of the Council to matters in which the legal aspects may be of importance, and shall give such other opinions in special matters as may be requested of him by the Council.

The General Counsel shall present in writing as promptly as the same may be properly prepared, such legal opinions as may be requested by the House of Delegates, the Council or the Executive Committee.

CHAPTER V.—COMMITTEES

Section 1.—Standing Committees

The standing committees of this Association shall be as follows:

(a) Scientific Work
(b) Public Policy and Legislation
(c) Medical Defense
(d) Medical Education and Medical Institutions
(e) Hospitals, Dispensaries, and Clinics
(f) Medical Economics
(g) Associated Societies and Technical Groups
(h) History and Obituaries
(i) Industrial Practice
(j) Postgraduate Activities
(k) Public Relations
(l) Physicians' Benevolence Committee
(m) The Reference Committees of the House of Delegates

until final adjournment of each regular session.

Section 2.—Standing Committees; How Elected; Term of Office

Unless otherwise provided in these By-Laws, each of the standing committees (except House of Delegates Reference Committees) shall consist of one member of the Council and two other members. Members of standing committees (other than House of Delegates Reference Committees) shall serve for a term of three (3) years. One member of each of these committees shall be nominated annually by the Council and if approved by the House of Delegates shall be deemed elected.

Section 3.—Report Procedure for All Committees

Regular standing and special committees of the Association may make investigations and surveys on authorization of the Council or House of Delegates, but all recommendations and reports of all committees (unless expressly otherwise provided in the Constitution or By-Laws) must be submitted only to the Council or House of Delegates. Other than as herein stated no committee is authorized to act for or represent this Association.

Section 4.—Advisory Groups to Standing Committees

To aid it in its work, each committee, if it so desires, shall have the power to appoint an Advisory Group to its committee, consisting of from two to ten members. Such advisory members, if present at a regular committee meeting, shall not have the right to vote.

Section 5.—Officers of Standing Committees

The chairman of each of these committees, except the Committee on Public Relations, shall be nominated and elected annually by the Council, by and with the approval of the House of Delegates. The chairman of the Committee on Public Relations shall be elected by said committee, subject to the approval and confirmation of the Council, and in the event of a failure to elect within sixty days after adjournment of the annual session the Council shall elect said chairman. Each of these committees shall, each year, except as otherwise provided in these By-Laws, at its first meeting or official consultation, during or following the annual session elect its own secretary.

Section 6.—Secretary-Treasurer's Notice to Standing Committees

The Secretary-Treasurer of the Association, within one month after the annual session, shall write the Committee Chairman of the preceding year, to call a meeting for organization and consideration of any business. The Secretary shall also send a copy of this letter to each of the other members of the committee.

Section 7.—Annual Reports of Standing Committees

At least sixty days prior to the annual session, each of these committees shall submit a written report to the Council on its work during the preceding year, the same to be printed in the Pre-Convention Bulletin as otherwise provided.

Section 8.—Committee on Scientific Work

The Committee on Scientific Work shall consist of the Secretary-Treasurer, the secretaries of the sections on general surgery and general medicine and three other members to be elected by the Council, each of these three members to serve three years, one member being elected each year. The Secretary-Treasurer shall be chairman.

This committee shall determine the character and scope of the scientific proceedings of the Association for each session, and shall invite the guest speakers, subject to the instructions of the Council.

At least thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers and discussions shall be presented.

This committee shall have one joint session with the section secretaries, at a time and place to be designated by the chairman of the committee, at least forty-five days prior to the annual session, to coordinate more efficiently the various activities of the Association at its annual session. The chairman of the local committee on arrangements shall be invited to attend this meeting.

Section 9.—Committee on Public Policy and Legislation

The Committee on Public Policy and Legislation shall consist of three elected members, and ex officio, the President and President-Elect.

The chairman of the committee, and in his absence, the President, shall act as chairman at the joint meetings of this central state group and of auxiliary county groups.

(a) *Functions of the Committee.* The Committee on Public Policy and Legislation and its auxiliary county groups shall represent the Association in securing and enforcing legislation in the interest of public health and of scientific medicine, subject, however, to the approval of the Council.

(b) *County Auxiliary Committees on Public Policy and Legislation.* Each component society shall appoint or elect three of its members as members of its auxiliary Committee on Public Policy and Legislation, designating one member as chairman; and the component society secretary shall send promptly the names and addresses to the Secretary of this Association.

(c) *Work of Auxiliary County Committees.* The Committee on Public Policy and Legislation of this Association, with the sanction of the Council, shall formulate the duties of these county auxiliary committees and supply each member with a copy of its suggestions and instructions. The auxiliary committeemen shall be accountable to their component societies and to the Council of this Association for prompt and continued cooperation with the Committee on Public Policy and Legislation of this Association.

Section 10.—Committee on Medical Defense

The Committee on Medical Defense, subject to the approval of the Council, shall prepare plans and establish rules for the protection of the legal rights of members of this Association against whom suits for alleged negligence have been threatened or brought.

It may assist in the defense of any member sued for alleged negligence if the member was in good standing and had complied with the rules of the Council when the service on account of which suit was threatened or brought was rendered—provided that the committee determines that the position of the member merits such action.

Section 11.—Committee on Medical Education and Medical Institutions

The Committee on Medical Education and Medical Institutions shall serve in this State for the Council on Medical Education of the American Medical Association.

It shall keep in touch with the problems pertaining to medical education and to medical and other institutions of training for medicine and the healing art.

Section 12.—Committee on Hospitals, Dispensaries and Clinics

The Committee on Hospitals, Dispensaries and Clinics shall serve in this State for the Council on Hospitals of the American Medical Association.

It shall keep in touch with the problems arising in the fields of work of all types of hospitals, dispensaries and clinics giving special attention to those activities that are, or tend to become, a menace to the best interests of scientific medicine and of the profession and its members.

Section 13.—Committee on Medical Economics

The Committee on Medical Economics shall investigate matters affecting the economic status of doctors of medicine.

Section 14.—Committee on Associated Societies and Technical Groups

The Committee on Associated Societies and Technical Groups, subject to the instructions of the Council, shall endeavor to create proper liaisons between this Association and other state and national medical organizations, as well as with the organizations of related professions, such as dentistry, pharmacy and nursing. It shall also endeavor to bring about a proper understanding with non-medical organizations or groups of technicians and others whose work has a bearing on or is related to the practice of medicine.

Section 15.—Committee on History and Obituaries

The Committee on History and Obituaries shall compile and prepare for the archives and for the publications of the society suitable articles on the history of the Association and statements concerning deceased members. The Editor and the Secretary shall be members of this committee, ex officio.

Section 16.—Committee on Industrial Practice

The Committee on Industrial Practice shall keep in touch with matters and problems peculiarly connected with industrial practice.

Section 17.—Committee on Postgraduate Activities

The Committee on Postgraduate Activities, of which the Secretary-Treasurer shall be an ex officio member, shall use its best efforts to promote the postgraduate and clinical courses and instruction among the component county units of the Association.

The supervision of such postgraduate and clinical courses and instruction shall be carried on through the central offices of the Association, the Council being empowered to defray travel expenses of guest speakers and other costs incident to such work to such amount as in the judgment of the Council may be deemed proper. In the development of such postgraduate and clinical courses and instruction, it is stipulated that the component societies, through their constituted representatives, shall cooperate with the Standing Committee on Postgraduate Activities and shall also arrange to bear a proper proportion of the expense thereof of such amount as may be mutually agreed upon.

Section 18.—Committee on Public Relations

The Committee on Public Relations shall consist of the chairmen of the following committees: Public Policy and Legislation, Medical Economics, Associated Societies and Technical Groups, the President, President-Elect, and two additional members appointed by the Council.

The committee shall be responsible to the Council and the House of Delegates for all of its activities.

The Council or the Executive Committee may instruct the Committee on Public Relations, and outline to it certain policies and duties which shall be executed through the Director of Public Relations. In the event of any disagreement between the committee and the Council or the Executive Committee as to any activity or policy, the decision of the Council, after full discussion and hearing, shall be final.

The committee shall make recommendations to the Council for approval as to the time, the place, the number of meetings and the budget of the Department of Public Relations, provided that the Secretary shall call the first meeting of the committee within thirty (30) days following the annual meeting of the Association.

The Director of Public Relations shall be appointed by the Council (after consultation with the Committee on Public Relations) annually at the organization meeting of the Council. He shall serve at the pleasure of the Council and the Committee. He shall act under the supervision and instruction of the chairman of the committee in such matters as shall be approved and sanctioned by the committee, and be responsible to the committee.

The Council shall arrange with the general counsel to give the committee all legal aid.

The committee shall annually at its first meeting elect its own chairman, subject to the approval and confirmation of the Council. The Secretary of the Association shall be ex officio secretary. A majority of the committee shall constitute a quorum.

Section 19.—Physicians' Benevolence Committee

The Physicians' Benevolence Committee shall consist of three (3) members whose appointments and terms of office shall be as provided in Section 2 of this Chapter.

The committee shall be responsible to the Council and the House of Delegates for all of its activities.

The committee shall administer those funds, of this Association, hereinafter designated as comprising the Physicians' Benevolence Fund.

The committee's administration of said fund shall be subject to the provisions of this section.

(a) The funds which may from time to time be allocated to it, from the general funds of the Association, by the Council, are the funds for this committee.

(b) All bequests, voluntary contributions, and donations, from any source whatever, that may be received by this Association for the express and implied purpose of aiding needy members, and

(c) All other funds from whatever source derived, except Accounts Receivable, payments for indebtedness to this Association, Dues and Assessments received by this Association, which the payer, donor, or other person transferring the funds, expresses the intent that such funds shall be for aid to needy members.

Funds contained in the Physicians' Benevolence Fund may from time to time be disbursed by the Physicians' Benevolence Committee.

Section 20.—Publication of Committee Reports in Pre-Convention Bulletin

Reports of the standing and special committees, as approved, deleted or modified by the Council, shall be published in a pre-convention bulletin or in the official journal of the month preceding the date of the annual session of the Association. Such reports must be in the hands of the Secretary-Treasurer at least sixty days in advance of the annual session.

If a committee fails to send in its report in proper time, the name of the committee and the names of its members shall be printed as above indicated, with a statement that the committee failed to send in its report, and the Council, subject to the approval of the House of Delegates, shall be empowered under such conditions to make such changes in the personnel of the committee as in its judgment may be deemed best.

Section 21.—Additional Committees

The House of Delegates and the Council are authorized and empowered to appoint special committees, with special instructions as to work to be undertaken, whenever it is deemed impractical or improper for the contemplated duties to be performed by a standing committee.

CHAPTER VI.—POWERS AND DUTIES OF OFFICERS

Section 1.—Duties of the President

The President shall preside at all meetings of the Association.

He shall appoint all committees not otherwise provided for; he shall deliver an address at the regular session at such time as may be arranged, and shall perform such other duties as custom and parliamentary usage may require, or as the House of Delegates or the Council may direct.

He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit, by appointment, the various sections of the State and assist the Councilors in building up the component societies, and in making their work more practical and useful. The Council shall decide what portion of the expenses incurred on his official visits shall be paid by the Association.

He shall be ex officio a member of all committees of the Association.

Section 2.—Vacancy in Offices of President and President-Elect; How Filled

In case of vacancy in the offices of both President and President-Elect, the chairman of the Council shall act as the Acting President until a President is elected at the next annual session of the House of Delegates.

Section 3.—Duties of the Secretary-Treasurer, Executive Secretary and Field Representatives

The duties of the Executive Secretary and Field Representatives may be such as are delegated to them by the Council, and may be any and all duties as are specified under the various provisions of this section.

(a) *Minutes.* The Secretary-Treasurer (who may also be referred to as Secretary or Treasurer) shall attend the General Meetings of the Association, the meetings of the House of Delegates, of the Council and of the Executive Committee, and shall keep minutes of their respective proceedings in separate record books.

(b) *Custodian of Records.* He shall be custodian of all record books and papers belonging to the Association. He shall have the custody of the seal of the Association.

(c) *Contracts.* He shall countersign all contracts, agreements, conveyances, transfers or other instruments to which the Association is a party, the execution of which has been authorized by the House of Delegates or Council.

(d) *Checks.* The Secretary-Treasurer shall sign and issue checks or drafts only upon vouchers approved and signed by at least two of the members of the Auditing Committee or as otherwise provided.

(e) *Advertisements in Association Publications.* The Secretary-Treasurer, subject to instructions by the Council, shall carefully examine, approve, modify or reject all material for advertising in any of the publications of the Association, and shall, in all cases of doubt, refer such proposed advertisements to the Executive Committee or the Council for decision. He shall, with the approval of the Council or the Executive Committee, execute, for the Association, written contracts relating to advertising in the form approved by the Council, subject to instructions by the Council.

(f) *Registrar at Annual Sessions.* He shall provide for the registration of the members and delegates at the Annual Session.

(g) *Index Register of California Medical Licentiates.* He shall, with the cooperation of the secretaries of the component societies, keep a card-index register of all the licensed practitioners of the State by counties, noting the status of each in relation to his component society; and shall transmit a copy of this list to the American Medical Association, transmitting to its secretary each month a report containing the names of new members and the names of those dropped from the membership roster during the preceding month.

(h) *Register of Component Societies, Their Members and Officers.* He shall keep a register of all component societies, their respective officers, and of all members of the Association, with their addresses, and shall compile an annual directory of the same. He shall print in the January or February issue of the official journal the number of active members of each component society as of November 1st of the preceding year.

(i) *Notices.* He shall give all notices required by the Constitution and By-Laws of this Association, or by order of the Council, or of the Executive Committee, or by law.

(j) *Correspondence and Notifications to Committees.* He shall conduct the official correspondence, promptly notifying members of meetings, officers of their election, and committees of their appointment and duties, as outlined in the motions creating such committees. Such notifications shall be made in writing.

(k) *Assistants.* He shall employ and dispense with such assistants as may be ordered by the Council. The Council by resolution may outline the scope and duties of special employees acting under the Secretary-Treasurer.

(l) *Annual and Other Report Forms.* He shall supply all component societies with the necessary forms for making their annual and other reports to this Association.

(m) *Salary.* The amount of his salary shall be fixed by the Council.

(n) *Bond.* He shall give bond in such sum as may be fixed by the Council. The Association shall pay the premium on the said bond.

(o) *Duties as Treasurer.* He shall as Treasurer demand and receive all funds due the Association, together with bequests and donations, and shall promptly deposit the same in one of the depositaries thereof; and shall keep a proper and accurate record thereof, as well as of all funds disbursed by the Association.

(p) *Audits and Reports.* He shall subject his accounts to such examination or audit as the House of Delegates or Council may order.

He shall annually render an account of his work, and of the state of the funds in his hands, and make a report on the same and of his work as Secretary-Treasurer to the House of Delegates. He shall in writing also make such other reports as the House of Delegates or Council may request.

(q) *Disbursement of Association Moneys.* He shall pay out the money of the Association only upon a check or draft as otherwise provided herein.

(r) *Other Duties.* He shall perform such other duties as the Council or Executive Committee may direct.

Section 4.—Duties and Powers of the Chairman of the Council

The Chairman of the Council shall preside at all meetings of the Council. He shall sign all contracts and agreements, conveyances, transfers or other instruments (other than advertising contracts) to which the Association is a party, the execution of which has been authorized by the House of Delegates or the Council. He shall sign all checks or drafts for the disbursement of funds of the Association. He shall, on behalf of the Council, deliver its annual report to the House of Delegates. He shall perform such other duties as may be imposed upon him by the Constitution or these By-Laws.

Section 5.—Duties of Vice-Chairman of the Council

The Vice-Chairman of the Council, in the absence or inability of the Chairman to act, shall be vested with all the powers and shall perform all the duties of the Chairman.

Section 6.—Duties and Powers of the Speaker

The Speaker of the House of Delegates shall preside at its meetings and shall perform such other duties as parliamentary usage may require. He shall appoint all committees authorized by the House of Delegates, unless otherwise provided.

Section 7.—Duties of Vice-Speaker

The Vice-Speaker shall act as Speaker in the absence of or at the request of the Speaker.

Section 8.—Duties of the Editor

The Editor and Associate Editor or Editors shall compile, edit and have charge of the official journal of the Association and such other publications as the Council or the House of Delegates may instruct him to undertake.

CHAPTER VII.—SESSIONS AND MEETINGS

Section 1.—Addresses at Regular Session

At the General Meetings, at such times as may have been arranged, shall be delivered the annual address of the President and, with the sanction of the Council, such other addresses and reports as may be deemed desirable.

Section 2.—Time Length of Papers

No address or paper, except that of the President, and such other addresses and reports as may be deemed desirable by the Council, shall occupy more than twenty minutes in delivery.

Section 3.—Time Length of Discussions

No member, except by unanimous consent, shall speak more than once in the discussion of any paper nor longer than five minutes at any one time.

This by-law shall be printed on all programs of general and section meetings.

Section 4.—Scientific Papers Property of Association

All papers read before this Association shall be its property.

Each paper, when it has been read, shall be deposited with the secretary of the section, by him to be promptly turned over to the Secretary of the Association.

Section 5.—Scientific Papers Not to Be Published Elsewhere

Authors of papers read before this Association shall not cause them to be published elsewhere except with the consent of the Committee on Publications.

Section 6.—All Meetings of Same Session Shall Be in Same Locality

The general meetings of the Association, the meetings of the House of Delegates, and the meetings of the Scientific Assembly and its sections at any session shall be held in the State of California at the same locality and in buildings as convenient of access, one to the other, as may be possible.

CHAPTER VIII.—ELECTION OF OFFICERS: TERMS

Section 1.—President-Elect—When and How Elected: Term of Office

The House of Delegates at the regular annual session thereof shall elect the President-Elect to serve until the adjournment of the final meeting of the House of Delegates at its next regular annual session. At the conclusion of the final meeting of the House of Delegates at its next regular annual session, such President-Elect shall assume the office of President, and serve as such for the term of one year thereafter, or until his successor assumes office.

Section 2.—Speaker and Vice-Speaker of House—When Elected: Term of Office

The House of Delegates shall at the regular annual session thereof elect a Speaker of the House of Delegates and a Vice-Speaker of the House of Delegates, each to serve for the term of one year, or until their successors are elected and assume office. The Speaker and Vice-Speaker shall be members of the House of Delegates at the time of their election.

Section 3.—Council Appointments to Fill Vacancies in Office

The Council by appointment shall fill any vacancy in office not otherwise provided for in this Constitution or the By-Laws, which occurs during the interval between the annual sessions of the House of Delegates. Such appointee shall serve until the next annual session or until his successor has been elected and has assumed office.

Section 4.—Officers Elected by House of Delegates

Those officers who under the Constitution are elected by the House of Delegates shall be elected at the second meeting of the House at the regular session thereof.

Section 5.—Election of District Councilors

At least twenty-four hours prior to the second meeting at each regular session of the House of Delegates the delegates from those districts in which Councilor vacancies are about to occur shall separately meet, and in each district the delegates shall elect a chairman and a secretary. At such caucus the delegates in each district shall by nomination, secret ballot and majority vote of the delegates present elect a district Councilor from such district to serve for the ensuing term. The chairman of the district delegation shall then report at the second meeting of the House of Delegates the results of the election, and when such report is made the member elected shall thereupon assume office as a district Councilor. The time and place of the caucus of each district delegation shall, in the absence of unanimous written consent by the delegates from the district fixing time and place, be fixed by the Speaker and announced at the first meeting of the House of Delegates at each regular session. In the event that at any district caucus no person receives a majority vote for district Councilor after repeated ballots, the chairman of the caucus shall report such fact at the second meeting of the House of Delegates and shall also report the names of all nominees submitted to the caucus, whereupon the House of Delegates shall proceed to elect from such nominees the district Councilor from such district.

Section 6.—Employment of Secretary-Treasurer, Assistant Secretaries, Editor and Associate Editors

The Council shall employ a Secretary-Treasurer and an Editor, and, in its discretion, one or more Assistant Secretaries or Associate Editors. The terms of their employment shall be such as are satisfactory to the Council, provided, however, that no contract of employment shall, by its terms, exceed a period of three (3) years from the date of the organization meeting at which such contract is authorized.

Section 7.—Qualifications of Secretary-Treasurer and Editor

No person shall be eligible to the office of Secretary-Treasurer or Editor or Associate Editor who does not hold the degree of Doctor of Medicine, but membership in this Association shall not be a necessary qualification for the offices of Secretary-Treasurer, Editor or Associate Editor.

Section 8.—Election by Ballot; Number of Votes Necessary

All elections of officers shall be by ballot; provided, that by a two-thirds vote of the members present and acting election by ballot may be waived.

A majority of the votes cast shall be necessary to elect any officer, except delegates and alternates to the American Medical Association.

In case no nominee receives a majority of the votes on the first ballot, the nominee receiving the lowest number of votes shall be dropped and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of all the votes cast, when he shall be declared elected.

Section 9.—Election of Delegates and Alternates to A.M.A.

In case no nominee for delegate or alternate to the House of Delegates of the American Medical Association receives a majority of the votes cast on the first ballot, the nominee receiving the highest number of votes cast shall be declared elected. In case of a tie vote, the tie shall be determined by lot. A separate election shall be held to fill each vacancy, and an alternate shall be specifically elected for each delegate.

Section 10.—When Terms of Office of Speaker, Vice-Speaker and Councilors Begin

The terms of office of the Speaker and Vice-Speaker of the House of Delegates (which terms are herein generally stated to be one year) and the terms of office of the Councilors (which terms are herein generally stated to be three years) shall commence immediately upon the adjournment of the last meeting of the House of Delegates of the regular session of the Association at which such officers are elected, and shall continue up to the adjournment of the last meeting of the House of Delegates at the annual session of the Association of the year in which the term of office ends.

Section 12.—Officers to Hold Office Until Successors Are Elected and Assume Office

Every officer shall hold office until his successor has been elected and has assumed office either in person or by announcement.

CHAPTER IX.—SCIENTIFIC SECTIONS

Section 1.

(a) *Division of Scientific Work.* The scientific work of the Association shall be divided into fifteen scientific sections, as follows: General Medicine; General Surgery; Pediatrics; Eye, Ear, Nose and Throat; Urology; Anesthesiology; Obstetrics and Gynecology; Radiology; Industrial Medicine and Surgery; Pathology and Bacteriology; Dermatology and Syphilology; Neuropsychiatry; General Practice; Public Health; and Allergy.

(b) *Additional Scientific Sections; How Authorized.* Additional scientific sections or regrouping of existing scientific sections can through proper resolution be authorized by the House of Delegates.

(c) *Rules of Procedure of Scientific Sections.* Each scientific section shall adopt rules of procedure for its own better government and work. Its officers shall be responsible for the proper keeping of records of scientific and business meetings.

(d) *Officers of Sections.* The members of each section shall at the regular annual session of the Association elect a chairman and a secretary to serve for the term of one year.

(e) *Program.* Each of the sections shall present a scientific program at the annual session of the Association, and its officers shall be responsible for the proper preparation of the same, and for the proper cooperation with other scientific sections during the annual meeting.

CHAPTER X.—FUNDS, PROPERTY AND ASSESSMENTS

Section 1.—Reduction of Dues

The House of Delegates may reduce annual dues of active members, as follows:

(a) Those active members who have been in the practice of medicine for less than one year (on the first day of the calendar year for which such dues are payable), may be reduced to one-fourth regular dues;

(b) Those active members who have been in the practice of medicine for less than two years (on the first day of the calendar year for which such dues are payable), may be reduced to one-half regular dues;

(c) Those active members who have been in the practice of medicine for less than three years (on the first day of the calendar year for which such dues are payable), may be reduced to three-fourths regular dues.

Dues payable by associate members shall be uniform and equal but may be set at not less than one-half the regular dues for active members.

Section 2.—Annual Dues and Assessments

(a) *When Payable.* The annual assessment or dues shall be payable on or before January 1 of the year for which they are levied.

(b) *County Secretaries to Collect Dues.* The secretary of each component society shall cause to be collected and shall forward to the office of the Association the dues and assessments for its members.

(c) *Record of Fact of Payment of Dues.* The record of payment of dues and assessments on file in the office of the Association shall be final as to the fact of payment by a member and as to his right to participate in the business and proceedings of the Association and of the House of Delegates.

(d) *Dues of New Members; Amount Payable.* All doctors of medicine becoming active members of this Association under the provisions of Section 1 of Chapter II of these By-Laws shall, as provided in Section 1 of Chapter II, pay to this Association the annual dues payable by active members for the period for which membership is obtained, except that the Council may, in its discretion, with respect to all new members who acquire membership after July 1 in each year, require payment of only one-half of the annual dues for said year. Such payment shall entitle such new member to all the rights of active membership in this Association until the end of the current calendar year.

Section 3.—Bequests, Legacies, Donations and Gifts

The Association may receive through the Council or for the benefit of the Association through any corporation which may be formed pursuant to the

Constitution, such bequests, legacies, donations and gifts as the Council shall deem it proper and suitable to accept.

Section 4.—Funds and Moneys; Deposit and Withdrawal

All funds and moneys of the Association by whomsoever received shall be promptly forwarded to the Secretary-Treasurer of the Association and deposited by him in a depositary of the Association.

No demands or claims against the Association shall be paid and no funds or moneys of the Association withdrawn from any depositary thereof except upon written voucher approved by the signature of at least two members of the Auditing Committee or by a majority vote or written approval of a majority of all the members of the Executive Committee on check or draft signed by any two of the following: the Chairman of the Council; the Vice-Chairman of the Council (only in the absence of the Chairman); Chairman of the Auditing Committee; the Secretary-Treasurer.

Section 5.—Revolving Fund

A revolving fund in such amount as may from time to time be fixed by the Council shall be deposited with the Secretary-Treasurer from which fund immediate cash demands may be paid.

Section 6.—Surplus Funds From Journal and Publications

On authorization therefor by the House of Delegates or the Council, any surplus funds arising from the operation of the official journal or other publications of the Association may be applied and used for any purposes deemed suitable or may be delivered and paid over to any corporation which may be formed pursuant to Article VIII, Section 1, of the Constitution.

CHAPTER XI.—REFERENDUM AND PETITION

Section 1.—Reference of Resolutions to Vote of Members

The House of Delegates may at any time, by a majority vote of those present, refer any resolution or motion pending before it to all of the active members of the Association for their vote for or against such resolution or motion. The Council may, by a two-thirds vote of all of its members and at any time within thirty (30) days after action was taken, refer any resolution or motion adopted by the House of Delegates to all of the active members of the Association for their vote for or against such resolution or motion. In addition, the Council may at any time, by a two-thirds vote of all of its members, submit any resolution or motion pending before it to all of the active members of the Association for their vote for or against such resolution or motion.

Section 2.—Form of Referendum: Arguments

The body referring any resolution or motion to the active members of the Association may, in the motion of reference, determine the form of the question to be submitted. In the event the motion of reference does not determine the form of the question to be submitted, then the form thereof shall be fixed and determined by the Council. Written arguments for and against the resolution or motion, not exceeding 1000 words each, may be submitted by any member of the Association to the presiding officer of the referring body within fifteen (15) days of the vote of reference. Such presiding officer may choose one argument on each side and same shall then be printed and mailed with the ballots.

Section 3.—Manner of Voting; Time of Voting; Canvass

All references to the membership under this article shall be by mail ballot. The time within which each member shall cast his vote may be fixed in the motion of reference, and if not so fixed shall be fifteen days from the date of mailing ballots. Each vote must be in writing and the same must be placed in a sealed envelope bearing on the corner thereof the name of the voter. The envelope shall be mailed or delivered to the Secretary's office. The canvass thereof shall be made by a committee on referendums to be appointed, in the case of reference by the House of Delegates by the Speaker of the House, and in the case of reference by the Council by the Chairman of the Council. The Secretary shall deliver to such committee all ballots timely received, and the committee shall canvass the vote and report the results thereof immediately to the Secretary.

Section 4.—Effect of Referendum

To be considered adopted, any resolution or motion submitted to the membership by referendum shall require the same proportionate affirmative vote of those voting that such resolution or motion would have required to be adopted by the body (House of Delegates or Council) from which such resolution or motion was referred. Any resolution or motion submitted to a referendum and adopted shall have the same force and effect as though adopted in the body from which it was referred, and shall be considered as having been so adopted by such body. A referendum shall not be effective or binding unless a majority of the active members vote thereon.

Section 5.—Petitions

Any 100 active members or any component society may petition the House of Delegates or Council on any matter and such petition must thereupon be heard and considered at the next ensuing regular meeting of such body.

CHAPTER XII.—MISCELLANEOUS

Section 1.—Ethics

The principles of medical ethics as promulgated from time to time by the American Medical Association and by the California Medical Association are and shall be the principles of medical ethics of this Association and the component societies thereof, and shall regulate and govern all members thereof.

Interpretation of ethics about which any controversy may arise or exist shall be submitted to the Council of this Association, and its interpretation and ruling thereon shall be final.

Section 2.—Rules of Order

In the absence of any provision in the Constitution or these By-Laws, all meetings of the Association, of the House of Delegates, of the Council, and of committees shall be governed by the parliamentary rules and usages contained in the current edition of Roberts' "Rules of Order."

CHAPTER XIII.—AMENDMENTS

Section 1.—Amendments—Vote and Procedure

These By-Laws may be amended by the House of Delegates at any meeting of any session thereof by the affirmative vote of at least two-thirds of the qualified members thereof present and acting; provided, that any proposed amendment has been submitted in writing to the House of Delegates at least twenty-four hours previous to being voted upon.

CHAPTER XIV.—REPEAL OF ALL EXISTING BY-LAWS

Section 1.—Repeal of Existing By-Laws

All chapters and all sections and parts of all chapters of the existing By-Laws of this Association are hereby repealed.

In Memoriam

Audrain, Leslie Carl. Died June 20, 1949, aged 74. Graduate of Rush Medical College, 1907. Licensed in California in 1922. Dr. Audrain was a retired member of the Los Angeles County Medical Association, and the California Medical Association.

✣

Harvey, Andrew Magee. Died in Pasadena, July 18, 1949, aged 81, of generalized carcinoma. Graduate of the University of Illinois College of Medicine, Chicago, 1893. Licensed in California in 1942. Dr. Harvey was an associate member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

✣

Johnstone, Kristine Blichert. Died in Napa, May 31, 1949, aged 79, of heart disease. Graduate of Loyola University School of Medicine, Chicago, 1917. Licensed in California in 1922. Dr. Johnstone was a retired member of the Napa County Medical Society, and the California Medical Association.

✣

Miller, Lovina Ruth Merritt. Died in Sanitarium, California, April 25, 1949, aged 75, of coronary thrombosis. Graduate of the American Medical Missionary College, Battle Creek, 1901. Licensed in California in 1936. Dr. Miller was a member of the Napa County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

✣

Pollak, Alois. Died in Los Angeles, July 17, 1949, aged 47, of cerebral hemorrhage. Graduate of Leopold-Franzens Universität Medizinische Fakultät, Innsbruck, 1926. Licensed in California in 1940. Dr. Pollak was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

✣

Seligman, Lewis Lipman. Died in Dinuba, July 9, 1949, aged 55, of coronary thrombosis. Graduate of the University of California Medical School, Berkeley-San Francisco, 1917. Licensed in California in 1917. Dr. Seligman was a member of the Tulare County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

✣

Simonds, Paul Edward. Died in Riverside, July 10, 1949, aged 72, of a cerebral hemorrhage. Graduate of the University of Southern California School of Medicine, Los Angeles, 1908. Licensed in California in 1909. Dr. Simonds was a member of the Riverside County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

NEWS and NOTES

NATIONAL • STATE • COUNTY

LOS ANGELES

Dr. Riojun Kinoshita of Japan, chief of cancer research at Osaka University Medical School, recently arrived in Los Angeles where he will do research work for one year with the assistance of the School of Medicine of the University of California at Los Angeles and the Veterans Administration. Dr. Kinoshita is being financed by a $10,000 U.S. Public Health Service fellowship.

MERCED

Dr. James A. Parker of Merced has been appointed by the Merced County Board of Supervisors to fill the newly created position of medical director of the county hospital.

SONOMA

Dr. Owen Thomas of Santa Rosa has been appointed technical director of the recently organized Sonoma County Community Blood Bank. Dr. Owen will be assisted by a blood bank committee of physicians to be appointed from the membership of the Sonoma County Medical Society.

GENERAL

The following memorandum from **Dr. George F. Lull,** secretary-general manager of the American Medical Association, was received last month by the California Medical Association:

"As of July 28, 1949, our records show that your Association had remitted 85 per cent of the $25 assessment. Its relative standing in per cent collected among the 53 constituent societies was I."

* * *

The California Society of Anesthesiologists has constituted a **Committee on Fires and Explosions** whose function is advisory to individuals in an effort to lessen the potential sources of such accidents. Inquiries for advice may be addressed to the chairman of the committee, John B. Dillon, M.D., 1200 N. State Street, Los Angeles.

* * *

Dr. Frank F. Tallman, one-time director of mental hygiene for the state of Michigan and more recently (1944-47) for Ohio, has been appointed director of mental hygiene for California by Governor Earl Warren. **Dr. Lawrence Kolb,** who has been serving as acting director since the resignation last March of Mrs. Dora Shaw Heffner, will resume his duties as deputy medical director when Dr. Tallman takes over the post in September.

The appointment of Dr. Tallman was made on the recommendation of a special committee composed of the deans of five California medical schools—Dr. Loren Chandler of Stanford, Dr. Stafford Warren of the University of California at Los Angeles, Dr. B. O. Raulston of the University of Southern California, Dr. George Harding of the College of Medical Evangelists, and Dr. Francis S. Smyth of the University of California, San Francisco.

Two grants to teaching institutions in California for **research on mental and nervous disorders** and five for **training personnel** in psychiatry, neurology, clinical psychology, psychiatric nursing and psychiatric social work have been announced by the Federal Security Administration. All grants were approved by Surgeon General Leonard A. Scheele of the Public Health Service, upon recommendation of the National Advisory Mental Health Council. The research grants are: University of California, $13,392 for "Exploration of social situations used in psychotherapy," under the direction of Dr. Karl M. Bowman and Dr. Jurgen Ruesch; $11,934 for "Personality development from birth to maturity (The Guidance Study)," under the direction of Dr. Jean Walker MacFarlane.

Training grants were allotted as follows: University of California (Berkeley), $119,007; University of California (Los Angeles), $10,770; Los Angeles Institute for Psychoanalysis, $9,720; University of Southern California, $35,930; Stanford University, $22,912.

* * *

"The American College of Radiology views with alarm and dismay all proposed **programs relating to the distribution of medical services** which place the diagnostic aspects of medicine in a category apart from the general practice of medicine," according to a letter sent by that organization to members and to others in the profession of medicine. The letter pointed out that "the convening of the 81st Congress brought forth a number of legislative programs so worded. Examples are: S.5, the original Wagner-Murray-Dingell bill; S.1679, the Thomas-Murray-Dingell bill; S.1106, the Lodge bill; S.1456, the Hill bill; and S.1907, the Flanders-Ives bill. The treatment of diagnostic medicine under these legislative schemes has varied all the way from pin-point socialization under S.1106 and classified as a hospital service in S.1907 to socialization in common with all of medicine but under the separate category of "Auxiliary Services" in S.5 and S.1679.

"In addition to this legislation," the letter continues, "not a few prominent members of the medical profession have recently promulgated similar plans emphasizing a difference in what they have termed 'the practice of diagnostic specialties' and the practice of medicine. The American College of Radiology is most disturbed by these medical spokesmen in that they have apparently seen in the socialization of diagnostic medicine relief from demands for socialization of all medicine. Theirs is a tragic error. The medical profession and most of the rest of the nation have come to understand that **medicine cannot and will not be socialized in a vacuum.** The socialization of any group, or segment of a group, is but a precursor of things to come. Medicine must not weaken its stand for freedom by partial appeasement and thus fall victim to piecemeal socialization. Abraham Lincoln observed that 'No nation can long endure half slave and half free.' It should be even more obvious that no profession can permanently maintain this imbalance."

* * *

The officers and committemen of the **California Academy of General Practice** held a business meeting in Fresno, July 24, 1949. Thirty-five members of the Academy attended. Major problems discussed included means of extending **postgraduate education** to the general practitioner and expansion of general practice sections in all hospitals. A vehement stand was taken against the adoption of President Truman's proposal to form a new Cabinet department with Oscar Ewing as its secretary. Recommendation of the Hoover report was approved as a better alternative.

The 1949 **officers of the Academy**, who were elected at the meeting of the California organization in Los Angeles on May 11, 1949, are as follows: President, Frederick Ewens, Manhattan Beach; vice-president, Dave F. Dozier, Sacramento; secretary-treasurer, Francis T. Hodges, San Francisco; directors, James Reeves, San Diego, James Raphael, Oakland, and Clarence Halburg, Redlands.

It has been announced that the First Scientific Assembly of the California Academy of General Practice will be held November 6 and 7, 1949, in Santa Barbara.

* * *

National Heart Institute grants of $74,544 to support **heart disease research** work in medical schools and hospitals in California were announced recently. A list of the seven projects and the names of the supervisors of each follows:

University of California, John J. Eiler, "Influence of hypnotics and metabolic stimulants on the rate and efficiency of aerobic phosphorylation in preparation of rat heart and brain"—$6,021.

University of California, John H. Lawrence, "Pathologic physiology of polycythemia vera and its relation to vascular diseases"—$10,476.

Scripps Metabolic Clinic, Eaton M. MacKay, "Factors concerned in the excretion of salt and water by man"—$18,651.

Institute for Medical Research, Cedars of Lebanon Hospital, R. W. Lippman, "An experimental investigation into the mechanism and nature of proteinuria"—$5,000.

University of Southern California, Douglas R. Drury, "The mechanism of production of chronic experimental hypertension"—$10,000.

University of Southern California, Clinton H. Thienes, "Action of drugs and metabolites on isolated normal and experimentally damaged hearts"—$10,000.

Stanford University, John A. Luetscher, Jr., "Continued study of factors regulating renal excretion of sodium"—$14,396.

* * *

The International College of Surgeons, United States chapter, will hold its fourteenth Annual Assembly and Convocation in Atlantic City, New Jersey, November 7-12. The program will include scientific sessions on subjects in the fields of general surgery; eye, ear, and nose and throat surgery; gynecology and obstetrics; urology; and orthopedic, thoracic, plastic and neurological surgery, as well as special surgical clinics held in Philadelphia hospitals on November 7. All doctors of medicine are invited to attend. Programs may be obtained from Arnold S. Jackson, M.D., secretary, Jackson Clinic, Madison 4, Wisconsin.

* * *

The National Gastroenterological Association will hold its 14th Scientific Session in Boston, October 24-26, 1949. Immediately following the convention, October 27-28, the Association is sponsoring a course in gastrointestinal surgery at the Boston City Hospital. Further information concerning the program and details of the course may be obtained by writing to the Secretary, National Gastroenterological Association, 1819 Broadway, New York 23, N. Y.

Programs of two postgraduate SYMPOSIA ON HEART DISEASE, one to be held October 12-15 by the Heart Division of the San Francisco Tuberculosis Association, the other October 18 and 19 by the Los Angeles Heart Association, are as follows:

TWENTIETH ANNUAL POSTGRADUATE SYMPOSIUM ON HEART DISEASE

October 12-15, 1949, St. Francis Hotel, San Francisco

Wednesday, Morning, October 12

9:00 A.M.–12:00 M., Colonial Ballroom

COURSES IN ELECTROCARDIOGRAPHY

(Please register in advance indicating whether you wish the elementary or more advanced course)

Participants: Francis L. Chamberlain, M.D., Francis Rochex, M.D., John J. Sampson, M.D., Robert L. Smith, Jr., M.D., Maurice Sokolow, M.D., Clarence M. Tinsley, M.D.

Wednesday Afternoon, October 12

1:30 P.M.–5:00 P.M., Colonial Ballroom

SESSIONS ON HEART DISEASE IN CHILDREN

Sponsored by the American Academy of Pediatrics, Northern California

Presiding: Hartzell H. Ray, M.D.
President, Northern California Pediatric Society

1:30 P.M.–4:00 P.M.—What the Pediatrician Should Know About Childhood Heart Disease, with Special Emphasis on Newer Diagnostic Procedures—A Panel Discussion.
Moderator: John A. Anderson, M.D.
Participants:
Mary B. Olney, M.D.,—Clinician's Viewpoint
Henry S. Kaplan, M.D.—Roentgenology
Maurice Sokolow, M.D.—Electrocardiography
Sanford Leeds, M.D.—Cardiac Catheterization
Questions and Answers—(Send questions in advance to Heart Division Office).

4:00 P.M.–4:15 P.M.—Recess.

4:15 P.M.–4:45 P.M.—The Pathogenesis of Rheumatic Fever—Arnold R. Rich, M.D.

Wednesday Evening, October 12

8:00 P.M., Colonial Ballroom

Presiding: William J. Kerr, M.D.

Studies on the Pathogenesis of the Collagen-Vascular Diseases—Arnold R. Rich, M.D.

Nature of the Auricular Arrhythmias, an Electrocardiographic and Cinematographic Study—
Myron Prinzmetal, M.D.

(This session is held in collaboration with the Medical Extension (University Extension), University of California Medical School, as one feature of a postgraduate series of twelve evening lectures in general medicine.)

Thursday Morning, October 13

9:00 A.M.–12:05 P.M., Colonial Ballroom

Presiding: David A. Rytand, M.D.

9:00 A.M.–11:00 A.M. — Clinical Conference — Presentation of Selected Cases of Cardiovascular Problems with Discussion of Diagnosis and Management—Guest speakers will participate.

11:00 A.M.–11:15 A.M.—Recess.

11:15 A.M.–12:05 P.M.—Sodium Depletion, Its Indications, Hazards, and Techniques—William Dock, M.D.

Thursday Afternoon, October 13

1:30 P.M.–4:50 P.M., Colonial Ballroom,
St. Francis Hotel

Presiding: Richard D. Friedlander, M.D.

1:30 P.M.–2:15 P.M. — Clinical - Pathological Conference — William Dock, M.D., Arnold R. Rich, M.D.

2:15 P.M.–2:30 P.M.—Recess.

SYMPOSIUM ON CHRONIC RHEUMATIC VALVULAR HEART DISEASE

2:30 P.M.–2:55 P.M.—Pathology of Valvular Heart Disease —Gerson R. Biskind, M.D.

2:55 P.M.–3:20 P.M.—Clinical Aspects and Course of Rheumatic Heart Disease—Harold Rosenblum, M.D.

3:20 P.M.–3:35 P.M.—Recess.

3:35 P.M.–4:00 P.M.—Physical Diagnosis of Valvular Heart Disease—Clayton D. Mote, M.D.

4:00 P.M.–4:25 P.M. — Hemodynamics of Valvular Heart Disease—J. K. Lewis, M.D.

4:25 P.M.–4:50 P.M.—Management of the Patient—Charles A. Noble, Jr., M.D.

Friday Morning, October 14

9:00 A.M.–12:00 M., Colonial Ballroom

Presiding: Edwin L. Bruck, M.D.

9:00 A.M.–9:25 A.M.—The Relationship of Trauma to Heart Disease—William W. Newman, M.D.

9:25 A.M.–9:50 A.M.—The Newer Drugs Affecting the Autonomic Nervous System—Windsor Cutting, M.D.

9:50 A.M.–10:00 A.M.—Recess.

10:00 A.M.–10:25 A.M.—The Effect of Anti-luetic Therapy Upon Luetic Heart Disease—Charles W. Barnett, M.D.

10:25 A.M.–10:50 A.M.—Chairman's Address—"The Normal Heart"—Arthur Selzer, M.D.

10:50 A.M.–11:05 A.M.—Recess.

11:05 A.M.–12:00 M.—Adrenal and Cardiac Factors in Circulatory Failure in Acute Infections—Arnold Rich, M.D.

Friday Afternoon, October 14

1:30 P.M.–4:30 P.M., Colonial Ballroom

Presiding: Marlow B. Harrison, M.D.

1:30 P.M.–2:20 P.M.—The Clinical Value of Recording the Motion of the Heart and Blood—William Dock, M.D.

2:20 P.M.–2:30 P.M.—Recess.

SYMPOSIUM ON CORONARY DISEASE

2:30 P.M.–2:55 P.M.—Pathogenesis of Coronary Disease—Dwight L. Wilbur, M.D.

2:55 P.M.–3:25 P.M.—The Dynamics of Myocardial Infarction—Myron Prinzmetal, M.D.

3:25 P.M.–3:40 P.M.—Recess.

3:40 P.M.–4:05 P.M.—The Course of Coronary Disease—Maurice Eliaser, M.D.

4:05 P.M.–4:30 P.M.—Problems of Diagnosis of Myocardial Infarction—Lester Lipsitch, M.D.

Friday Evening, October 14

7:00 P.M., Colonial Ballroom

Twentieth Annual Dinner Meeting

Presiding: Arthur Selzer M.D., Chairman
Election of Officers

The Management of Coronary Disease—William Dock, M.D.
(Green Room open at 6:00 P.M. for cocktails)

Saturday Morning, October 15

9:00 A.M.–12:00 M.

San Francisco Hospital, Ward P
Potrero Avenue and 22nd Street

Presiding: J. Marion Read, M.D.

Presentation of Patients with Various Types of Heart Disease

Discussants: William Dock, M.D., and Arnold R. Rich, M.D.

LOS ANGELES HEART ASSOCIATION

October 18 and 19, 1949, Wilshire-Ebell Theatre, Los Angeles

Tuesday Morning, October 18

9:00 A.M. to 12:00 Noon

Catheterization of the Heart—George C. Griffith, M.D., Pasadena.

The Unipolar Electrocardiogram—William Paul Thompson, M.D., Los Angeles.

The Clinical Use of Angiocardiography—Charles R. Baker, M.D., Los Angeles.

Electrokymographic and Ballistocardiographic Records of the Motion of the Heart and Blood — William Dock, M.D., Brooklyn, N. Y.

Questions and Discussion.

Tuesday Afternoon, October 18

2:00 P.M. to 4:30 P.M.

Pathogenesis of the Collagen Vascular Diseases—Arnold R. Rich, M.D., Baltimore, Md.

Causes of Death in Reporting of Heart Disease—Representative—USPHS.

Choice of Anesthesia in Heart Disease—Forrest E. Leffingwell, M.D., Los Angeles.

Practical Problems in the Treatment of Ischemia of the Lower Extremities—Vernon P. Thompson, M.D., Los Angeles.

Recognition of Cardiac Arrhythmias—Thomas H. Brem, M.D., Van Nuys.

Treatment of Cardiac Arrhythmias—John Martin Askey, M.D., Los Angeles.

Tuesday Evening, October 18

7:00 P.M.

Dinner Meeting, Ambassador Hotel

William Dock, M.D., Speaker

Wednesday Morning, October 19

9:30 A.M. to 12:00 Noon

Adrenal and Cardiac Factors in Circulatory Failure During Acute Infections—Arnold Rich, M.D.

Indications for Sympathectomy—Maurice Rosenfeld, M.D., Los Angeles.

Presidential Address—Lewis T. Bullock, M.D., Los Angeles.

Heart Failure, an Adaptation to Reduced Cardiac Output—William Dock, M.D.

Wednesday Afternoon, October 19

2:00 P.M. to 4:30 P.M.

The Cardiac Effect of Norepinephrine and Related Compounds—Morris H. Nathanson, M.D., and Harold Miller, M.D., Los Angeles.

Experiences in the Use of Low Sodium Diets Other Than the Rice Diet—Morley J. Kert, M.D., Los Angeles.

Sodium Depletion; Its Indications, Results and Hazards—William Dock, M.D.

Clinical-Pathological Conference—William Dock, M.D., and Arnold Rich, M.D.

POSTGRADUATE EDUCATION NOTICES

University of California, Los Angeles

Course: 1. Surgical Anatomy.

Date: September 19 through December 17, 1949. Fee: $100.00.

Meeting Place: Los Angeles Medical Department.

Course: 2. Therapy of Metabolic and Endocrine Disorders.

Date: September 28 through December 7, 1949. Fee $50.00.

Meeting Place: General Medical and Surgical Hospital, Veterans Administration Center, Los Angeles 25.

This course will consist of 13 evening presentations, stressing therapy.

Course: 3. Recent Advances in Obstetrics and Gynecology.

Date: October 3-7, 1949. Class will meet six hours per day.

Meeting Place: General Medical and Surgical Hospital, Veterans Administration Center, Los Angeles 25. Fee: $50.00.

Course: 4. A series of lectures in the Basic Sciences as Applied to Bone and Joint Surgery will be sponsored by the Division of Orthopedic Surgery, General Medical and Surgical Hospital, Veterans Administration Center, Los Angeles, and the Orthopedic Hospital of Los Angeles. The complete series will extend over a two-year period, with a total of 40 lectures, 20 sessions per year.

Contact: Office of Medical Extension, University Extension, University of California, Los Angeles 24, California.

The California Chapter of the American College of Chest Physicians

Courses in Diseases of the Chest.

In cooperation with University of California Medical School and Stanford University School of Medicine.

Date: December 5 through 9, 1949.

Contact: Stacy R. Mettier, M.D., Medical Extension, University of California Medical Center, San Francisco 22, California. Fee and printed program supplied on requests including veterans.

American College of Physicians

Course: The Physiological Approach to Clinical Problems in Cardiovascular Diseases.

Contact: George C. Griffith, M.D., F.A.C.P., Director; University of Southern California School of Medicine, Los Angeles 33, California.

Fees: $30.00, A.C.P. members and V.A. (P.L. 346), $60.00 non-members.

Graduate School of Medicine, College of Medical Evangelists

Courses offered in Anesthesiology, Acute and Chronic Thoracic Diseases, General Medicine, Traumatic Surgery, Physical Therapy, Surgical Anatomy, Otolaryngology, Genito-Urinary Diseases and Diseases of the Kidneys during the period from September 27 to December 20, 1949. Details of the various courses may be obtained by writing for the special brochure.

Contact: H. M. Walton, M.D., Dean, Graduate School of Medicine, College of Medical Evangelists, 312 No. Boyle Avenue, Los Angeles 33, California.

California Heart Association—1949 Symposium

Guest speakers will be Dr. William Dock, professor of medicine, Long Island College of Medicine, Brooklyn, and Dr. Arnold R. Rich, department of pathology, Johns Hopkins University, Baltimore.

Contact: California Heart Association, 42 Second Street, San Francisco 5, California.

Dates: San Francisco: October 12 through 15, 1949. Los Angeles: October 18 and 19, 1949.

Stockton Postgraduate Study Club

Meetings will be held in the Lecture Hall, Stockton State Hospital, in the Psychopathic Hospital Building on Magnolia Street.

September 15 (Thursday), 8 p.m.—"Pharmacology in Changing World," by Dr. Torald Sollmann, Professor Emeritus of Pharmacology and Materia Medica, and Dean Emeritus of the Medical College, Western Reserve University, Cleveland, Ohio.

September 22 (Thursday), 8 p.m.—"Carcinoma of the Oral Cavity and Face," by Dr. Harry Glenn Bell, Professor of Surgery at the Medical School, University of California.

September 29 (Thursday), 8 p.m.—"Peptic Ulcer: Treatment with the Anti-Peptic Ulcer Dietary Factor," Dr. Garnett Cheney, Clinical Professor of Medicine, Stanford University Medical School.

October 13 (Thursday), 8 p.m.—Coccidioidomycosis with Special Emphasis on Clinical Aspects," Dr. Charles Edward Smith, Professor of Public Health, School of Public Health, University of California.

October 20 (Thursday), 8 p.m.—"Common Benign Diseases of the Rectum and Anus," Dr. Walter Birnbaum, Assistant Clinical Professor of Surgery, Medical School, University of California.

October 27 (Thursday), 8 p.m.—"Clinical Allergy—Its Diagnosis and Treatment," Dr. Albert H. Rowe, Lecturer in Medicine and Allergist, Medical School, University of California.

November 17 (Thursday), 8 p.m.—"Surgical Diseases of the Biliary Tract," Dr. Wm. Longmire, Jr., Chairman Department of Surgery of School of Medicine, University of California at Los Angeles.

December 8 (Thursday), 6:30 p.m.—Annual Dinner Meeting (place to be announced).

"Recent Developments in Virus Diseases and Their Treatment," Dr. Karl F. Meyer, Director of Hooper Institute Foundation for Medical Research.

INFORMATION

Medical Aspects of Parathion Insecticide

The group of insecticides known as organic phosphates has come into widespread use in the past few years, and because of their efficiency as economic poisons will undoubtedly be encountered more frequently. A previous bulletin described the pharmacology and toxicology of hexaethyl tetraphosphate and tetraethyl pyrophosphate, two compounds of this group. The present article is concerned with a third member, parathion (O, O-diethyl-O-P-nitrophenyl-thiophosphate) which is equally toxic and potentially hazardous if improperly handled.

During the past year (1948-1949) the Bureau of Adult Health has received reports of seven cases of parathion poisoning occurring in California. Undoubtedly there have been others which were not reported. Three parathion deaths and one near fatality have recently been reported in the East. Since parathion (also commercially known as Thiophos) has only recently come into widespread use, symptoms of its toxicity may not be familiar to all physicians who are encountering cases, and possibly cases have occurred in which the true etiology has been unrecognized.

Parathion is a deep brown liquid of low vapor pressure, some samples of which possess a characteristic odor. It is slightly soluble in water, but is completely miscible in many organic solvents including ethers, alcohols, and animal and vegetable oils. It is stable in a neutral solution but is rapidly hydrolyzed in the presence of alkalies, including soap. In actual application as an insecticide, the material may be used as a wettable powder or a dust.

Cases of poisoning have occurred in people engaged in the manufacture of the material, in those compounding solutions, in agricultural workers applying it, and even in people who have unwittingly come in contact with it. An example of the last is the case of a welder who cut into a pipe containing parathion and developed symptoms of poisoning ten minutes later.

Absorption—In experimental animals it has been demonstrated that parathion is readily absorbed through the skin and from the respiratory and digestive tracts. Almost all clinical cases of poisoning have occurred as a result of absorption through the skin or respiratory tract, and symptoms have appeared within a very brief period after exposure, indicating rapid uptake by the body. In some cases, local dermatitis has been observed at the site of contact. If the material should be splashed in the eye, there is an intense miosis, resulting in temporary blindness.

Pharmacology—The principal mode of action of parathion is the inactivation of the enzyme cholinesterase. This enzyme, present in blood and nervous tissue, destroys acetylcholine, and in its absence the accumulation of acetylcholine results in excessive parasympathetic nervous system activity. This muscarine-like effect is the underlying cause of the multitude of symptoms which has been recorded by various writers throughout the country.

Signs and Symptoms—Observed cases have varied from those showing mild, transient symptoms to those with severe toxemia resulting in death. Early signs and symptoms include headache, nausea, vomiting, dizziness, cramps, and constriction of the pupils. More severe poisoning is manifested by a feeling of tightness of the chest, difficulty in breathing, fibrillary twitching of the voluntary muscles, convulsions, pulmonary edema, and coma. There may also be diarrhea which may be bloody. Death results from a combination of pulmonary edema and congestion and edema of the brain.

Destruction of cholinesterase, producing the parasympathetic stimulation, results in smooth muscle spasm, excessive bronchial secretion, and capillary dilatation. Evidence concerning chronic toxicity and cumulative action is incomplete. However, studies are now under way to determine the effect of chronic exposure to dosages below those producing acute effects. It may possibly be that with chronic exposure, an irreversible destruction of cholinesterase can be produced.

Diagnosis—Accurate diagnosis depends upon obtaining a history of exposure to parathion. A high index of suspicion should be maintained, especially in agricultural areas where the material is most commonly used. However, cases have also occurred in the cities, especially among workers engaged in manufacture or formulation of the insecticide. Any patient who may have come in contact with parathion, and who complains of headache, dizziness, nausea, or blurred vision, should be suspected of suffering from acute poisoning. A lowered blood cholinesterase is confirmatory evidence. Ten cc. of citrated blood is necessary for this test, and the Bureau of Adult Health will run samples provided by any physician in California. Instructions regarding the preparation and mailing of specimens will be sent on request.

Treatment — Atropine is a specific therapeutic agent against the parasympathetic nervous system stimulation. Therapeutic doses (1/75 to 1/100 of a grain) should be administered early and frequently as indicated. Magnesium sulfate counteracts the hyperactivity of the myoneural junction and 10

From the Bureau of Adult Health, State of California Department of Public Health.

to 20 cc. of a 10 per cent solution given slowly intravenously should be used in conjunction with atropine. At the earliest sign of pulmonary edema, oxygen is indicated and may be life-saving when administered early. Positive pressure may also be of value (oxygen under pressure of 4 to 6 mm. of water) in the treatment of pulmonary edema.

Prevention—Poisoning by this compound can be prevented if proper attention is given to safe methods of handling it and if all persons concerned appreciate its extreme toxicity. All contact with the bare skin must be avoided and rubber covered cotton gloves must be worn when handling parathion. If any of the material gets on the skin it should be thoroughly washed off with copious amounts of soap and water. Workmen should be provided with freshly laundered coveralls and should wear fresh clothing each day, including socks and underwear. Inhalation should be avoided by use of a chemical cartridge respirator approved by the U. S. Bureau of Mines. Workers should bathe with soap and water after using the material, and contamination of food and tobacco should be avoided. Any exposed person developing symptoms should immediately be removed from the exposure and seen by a physician.

Bureau of Adult Health—Physicians are urged to report cases of poisoning from insecticides to the Bureau of Adult Health, 2002 Acton Street, Berkeley 2, California. The Bureau's personnel and facilities are available to physicians for assistance in the diagnosis and prevention of these cases.

REFERENCES

1. Bureau of Adult Health, State of California Department of Public Health: Occupational Health Bulletin No. 1, Summary of Information Regarding Some of the Newer Insecticides (July), 1948.

2. Technical Bulletin No. 2, Thiophos Parathion, American Cyanamid Company, Agricultural Chemical Division, New York, N. Y. (Dec.), 1948.

3. Sawitsky, A., M.D., Fitch, H. M., Ph.D., and Meyer, L. M., M.D.: A study of cholinesterase activity in the blood of normal subjects, The Jour. of Lab. Clin. Med., 33:203-206 (Feb.), 1948.

4. DuBois, K. P., Doull, J., Salerno, P. R., and Coon, J. M.: Studies on the toxicity and mechanism of action of p-nitrophenyl diethyl thionophosphate (Parathion), Jour. of Pharm. and Exper. Therapeutics, 95:79-91 (Jan.), 1949.

5. Hamblin, D. O.: Report of American Cyanamid Co., New York (May 12), 1949.

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BOOK REVIEWS

FUNDAMENTAL CONSIDERATIONS IN ANESTHESIA. By Charles L. Burstein, M.D., Chief, Department of Anesthesiology, Hospital for Special Surgery, Veterans Administration Hospital, N. Y. The Macmillan Company, New York, 1949. $4.00.

This book is well titled. It contains information on pharmacology, physiology and physiopathology as related to clinical anesthesia with which everyone administering anesthetics should be familiar.

Under the heading of Circulatory Disturbances, shock, celiac plexus reflex, carotid sinus reflex, cardiac arrhythmias and the changes of blood pressure under spinal anesthesia are each briefly explained and a method to avoid these complications or treat them when they do occur is suggested.

The book is clear, concise and fundamentally sound and can be recommended to everyone interested in anesthesiology.

* * *

THE STORY OF MEDICINE. By Joseph Garland, M.D., Houghton Mifflin Company, Boston, 1949. $2.75.

Most books dealing with the history of medicine were written primarily by professional historians for the student of history and therefore ordinarily are not within the reading sphere of the average man. Besides, often they are weighty tomes of the reference type not to be read just casually. Joseph Garland, pediatrician and editor of the *New England Journal of Medicine*, evidently felt the need for something more easily read but still adequately informative and sufficiently exciting to hold the reader. And so he has told the great story of the development of medicine in a conversational style all of his own that is most attractive and certainly sufficiently exciting to invite the reader to peruse the book more than once. I did so, and I enjoyed the second reading even more than the first although your reviewer flatters himself to be thoroughly conversant with the history of medicine.

The real value of Garland's book is not only that it can be read with pleasure by anybody but that it also is the kind of history that the medical student as well as the busy practitioner can read with considerable profit. Neither students nor practitioners ordinarily have the time, or make the time, or have the inclination to delve into the learned treatises written by our outstanding historians. The result has been that most practitioners of medicine have forgotten much, if not all, of what has made medicine great through the centuries. Now here is a chance to refresh one's memory with the reading of the exciting events that led up to the shaping of modern medicine without having to struggle with involved sentences and the endless references of the larger works on the subject.

You will enjoy reading about the talkative inquisitive men who build up great theories on the basis of little fact and how they attempted to understand something beyond the boundaries of their knowledge, just as some of our supposed wisdom of the present will some time be proved false and must be replaced. And therewith the author leads you from ancient times through the thinking of the Greek and Roman medical men on to the medicine of the Moslem Empire and into the Christian era. He tells you what transpired at the medieval universities where after three years of logic the student spent from five to seven years to make himself proficient in the Art of Healing. He tells of the days of the great plagues and the suffering they brought to the mankind of that day. He tells you of the days of the rebirth of intellectual curiosity in men's minds that came with the dawning of the Renaissance and that ultimately brought forth the great men of Padua, Bologna and Paris and such mental giants as Harvey and Vesalius. And so he unfolds the story of medicine by telling of great men and lesser men, modest men and vain men, and how they came to know about disease.

It would go too far to tell here about all there is in this book of Garland's. Besides, telling all of it here would take away from the joy of discovering the treasures of information crammed into the few hundred pages of this history of medicine. You will enjoy reading Garland's tale after a hard day's work. It will stimulate your thinking and will relax you. It will make you feel proud of your profession. By all means read this book, Doctor, and then tell your patients about it. They, too, will enjoy reading it and no doubt will come to understand better why medical practitioners through the ages have devoted their lives to bettering the health and happiness of mankind.

* * *

MEDICAL ETYMOLOGY—The History and Derivation of Medical Terms for Students of Medicine, Dentistry, and Nursing. By O. H. Perry Pepper, M.D., Professor of Medicine, University of Pennsylvania. W. B. Saunders Company, Philadelphia, 1949. $5.50.

This small volume, the first comprehensive work on medical etymology, will prove of great interest to any philologist, whether or not he is a doctor. For Dr. Pepper has done a stimulating and often witty—if not always thorough—job of classifying and tracing the derivation of some 4,000 medical terms. Because the book was planned principally for the use of the medical or dental students, it is divided into an introduction and separate sections for preclinical subjects, clinical subjects and dentistry. Any medical reader, however, will find these divisions handy for reference. The introduction, with its discussions of the background of medical terminology, prefixes, suffixes, compounds and transliteration, eponyms and onomatopoetic words, is unusually pertinent and interesting.

This book should not be confused with a dictionary. Dr. Pepper often does not bother to define the terms he discusses. (When he does, he is apt to come up with such a definition as, "Odontalgia—a ten dollar word for toothache.") Instead, he devotes himself to a series of enthusiastic running comments on the history and derivation of these words. Readers will find these discussions strongly flavored with Dr. Pepper's lively personality—and his occasional prejudices and inconsistencies. For Dr. Pepper proves somewhat of a Don Quixote. He fences against the use of eponyms. While obviously fascinated with existing medical terms and their derivations, he finds many of them difficult and he advocates unusually free modification of them. He defines and traces the derivation of the names of all the larger branches of medicine except his own—internal medicine. However, he does derive diagnosis from the Greek, *dia*= apart, and *gnosis*=knowing. And he states: "The word physician is derived from the ancient Latin word physicus= physical philosopher." . . . "Doctor (L. doctor=a teacher) was the highest degree in medicine, law or theology given by the medieval universities. . . . Let these words suffice." Could it be that Dr. Pepper doesn't "*gno*" the derivation of "internist"?

Whether or not this volume will prove as valuable to medical and dental students as Dr. Pepper hopes, is debatable. (Is the knowledge of derivation of words really of any great help in recalling and associating them?) At any rate, it makes for provocative and enjoyable reading. The last word given in it is xerostomia, from the Greek *xeros*= dry and *stoma*=mouth. "This results," Dr. Pepper writes, "from several causes, including the reading of this book through to the end." The reviewer, for one, didn't find this so.

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Nutritional Aspects of Anastomotic Operations

With Special Reference to the Sprue Syndrome

Chester M. Jones, M.D., *Boston*

SUMMARY

Necessary but radical operation which results in short-circuits between various levels of the digestive tract, with or without resections of portions of the esophagus, stomach or intestine, frequently cures the condition for which the operation was done, but leaves the patient with difficult nutritional problems. These nutritional disturbances are usually associated with inability to maintain or gain weight as a result of badly regulated movement of food material through the altered digestive tract, and by the removal or diversion of important digestive secretions, such as those elaborated by the stomach, pancreas, duodenum and small bowel.

Increased intestinal rate and diminished specific gastrointestinal secretions reduce the ability of the small bowel to properly absorb food, with resulting malnutrition, deficiency disease, and at times specific avitaminosis. Inability to absorb fat and fat-soluble substances is a constant feature of these conditions. Successful treatment of the nutritional problems involves constant, prolonged overfeeding of nonbulky foods, usually given in regular, frequently administered meals of small volume. Vitamin concentrates may occasionally be of some temporary assistance but are not needed if a balanced diet is given and may cause undesirable and sometimes dangerous symptoms. The use of supplemental substances, such as liver extract and a wetting agent, such as "Tween 80," to improve fat absorption have been demonstrated to be of value.

The postoperative conditions described are fairly similar to the condition known as sprue, and it is possible that the general principles underlying the treatment of this disease apply to the entire group of postoperative nutritional disturbances alluded to.

The success of any operative procedure should be judged by at least three criteria: (1) survival; (2) cure or control of the underlying disease for which the operation was performed; and (3) freedom from postoperative disturbances that may cause important symptoms and at times may interfere with normal activity because of physiologic disturbances secondary to the operation. The subject of this presentation is the third factor in relation to various types of anastomotic operation. These postoperative difficulties concern themselves particularly with nutritional disturbances that at times may represent major obstacles to continuing good health and are fundamentally associated with a derangement of the absorptive mechanism. They may also be observed in a syndrome such as sprue, in which there is a striking inability to absorb important food materials. The author wishes to draw an analogy between the two states.

Presented before the First General Meeting of the 78th Annual Session of the California Medical Association, Los Angeles, May 8-11, 1949.

Clinical Professor of Medicine, Harvard University; physician, Massachusetts General Hospital, Boston.

In sprue, faulty absorption seems to be due to an alteration in the segmental motility of the small bowel, together with a profound diminution of its ability to permit the passage across the intestinal mucosa of various food elements, particularly fats and fat-soluble substances. The exact cause of the sprue syndrome is not known, but it can be more or less adequately controlled by the constant administration of sufficient quantities of material extracted from liver, of folic acid, and of the recently isolated vitamin B_{12}. Like pernicious anemia, it is associated with glossitis, a variable degree of atrophy of the gastric and intestinal mucosa, anemia, and gastrointestinal disturbances. The latter typically include the passage of frothy, fatty stools and tremendous abdominal distention, most pronounced at the end of the day and secondary to faulty absorption of carbohydrates. There is no known abnormality of gastric secretion; pancreatic secretions are normal. In advanced cases of sprue, the nutritional deficits may produce extreme and rapid emaciation, tongue and skin changes, clinical tetany, edema, and hypoprothrombinemia. Gastrointestinal x-ray films reveal an abnormal motility in the small bowel with puddling and changes in the mucosal pattern suggesting loss of tone, poor segmentation and edema. These roentgenologically visible changes are not diagnostic but are common to states of malnutrition due to a variety of causes.

The faulty absorption of foods can be readily demonstrated by numerous laboratory studies. Lack of the substance required to mature erythrocytes results frequently in macrocytic anemia. Pronounced steatorrhea indicates the gross difficulty in fat absorption. Vitamin A tolerance curves are practically flat, and a pronounced prolongation of prothrombin time also implies diminished absorption of other fat-soluble substances. Even simple carbohydrates are poorly or slowly assimilated, as evidenced by low or flat glucose tolerance curves. Tetany, when present, is due to a deficiency of ionized calcium in the blood serum secondary to the excessive loss of this mineral in the stools in the form of calcium soaps, or because of faulty absorption of fat-soluble vitamin D with a resulting derangement of normal calcium metabolism, which may progress to a point at which evident osteoporosis can be demonstrated. Protein absorption is also abnormal, in all probability, and is reflected in a significant lowering in the serum protein and serum albumin. It is possible, of course, that this phenomenon is primarily due to depletion of nitrogen stores and the diminution in muscle mass associated with emaciation, but it is more likely that decreased absorption of nitrogenous material and increased consumption of body protein together combine to bring about the final results. A third possible factor may be the ultimate diminution of adrenocortical hormone present in emaciated states with abnormal nitrogen and steroid metabolism.

The foregoing rather detailed discussion of a nutritional disease associated with an intrinsic fault in intestinal absorption is presented as groundwork for comparison of such a state with certain conditions, encountered after necessary but very radical operations on the gastrointestinal tract, which at times produce somewhat analogous malnutrition due also to absorptive difficulties. These operations have involved radical resection of portions of the small and large bowel or subtotal resection of the stomach. In every instance there is a common factor—namely, the removal of an appreciable portion of an absorbing or secreting surface, or an anastomotic operation which may modify intestinal motility or function. Together with such a resection or anastomosis is the added factor of sphincter by-pass or removal.

The first example of such a condition is that of a man 32 years of age, who in 1935 had an appendectomy for acute right lower quadrant pain and nausea. At operation a segment of diseased ileum was noted. Subsequent operation in April 1936 resulted in a resection of the lower 12 inches of the ileum and all of the right half of the colon, together with an ileotransverse colostomy. At this time a diagnosis of regional enteritis was established. Because of repeated occurrences of abdominal cramps and diarrhea, a further operation was performed in November 1940, with resection of all the remaining ileum and the establishment of a jejuno-transverse colostomy. From that time on, the maintenance of weight and strength imposed a serious problem because of diarrhea. Some control of the situation was probably obtained by the intermittent use of liver extract in combination with a planned diet. From 1942 to 1944, the body weight was stabilized at 66 kg., but the patient worked long hours, driving an ambulance 240 miles daily, and while the dietary intake was large, it was poorly controlled. In 1944 he began slowly to lose weight again, and after two years the downhill course became rapid, with a recurrence of watery diarrhea, abdominal distention, abdominal cramps and the appearance of glossitis, cheilosis, and loss of strength. There was a total weight loss of 14 kg., which necessitated hospitalization.

Emaciation, dehydration and pallor were noted at the time of entry. The tongue was beefy red with papillary atrophy. There was abdominal distention and moderate clubbing of the fingers. X-ray studies revealed a striking change in the mucosal relief pattern of the remaining small bowel entirely similar to that seen in sprue. (The author is sure that the presence of such abnormalities in the mucosa itself contributed an added factor interfering with normal absorptive processes.) The laboratory data, shown in the accompanying Table 1, indicate the degree of nutritional disturbance—as, for example, the reduction in hemoglobin, total protein, serum albumin and calcium, and the prolongation of prothrombin time.

For one month therapy consisted of attempts to provide an adequate diet, generous vitamin supplements, and calcium given intravenously. During this period the weight remained constant at 50 kg., and the continued administration of large doses of concentrated vitamins was associated with increased bowel activity and more pronounced glossitis and stomatitis. At the end of this period vitamin therapy was discontinued and injections of crude liver extract were given daily. Clinical improvement was rapid and steady. The stools became fewer in number and were semiformed. Stool volume decreased from approximately 2,500 cc. daily to 1,000 cc. daily, with a corresponding rise in urinary output (Table 2). At the end of one month's treatment the patient was sent home on a regimen of about 4,000 calories, supplements of calcium by mouth, and liver parenterally. During the second phase of treatment he gained 7 kg. in three weeks, and satisfactory progress has continued to date. At present the stools are formed and number one to two a day.

In this instance, failure to maintain nutrition was obviously due to increased intestinal rate associated with a jejunocolic anastomosis and an absorbing surface inadequate because of the removal of the entire ileum. An important added factor was the increased metabolic requirement imposed by excessive physical activity. The combination of all these factors made it impossible to maintain weight and proper nutrition. The administration of a low-residue diet, containing almost 80 calories per kilogram of body weight, and the limitation of activity were two most important measures of therapy, but it is highly possible that the addition of liver extract was a valuable supplemental measure. The use of concentrated vitamin preparations was probably harmful.

The second case is that of a woman, 33 years of age, who was well until 1941, at which time an acute infection initiated a period of diarrhea, which lasted for many weeks. During this episode she had from 6 to 12 loose stools daily, with nausea and vomiting, and lost approximately 7 kg. in weight. Hospital studies resulted in a diagnosis of ulcerative ileocolitis. An operation was performed in which all of the affected bowel was removed, involving three and a half feet of terminal ileum and the upper two-thirds of the colon. An ileosigmoidostomy was done. Intestinal obstruction occurred at the site of the anastomosis three years later, necessitating a further anastomotic operation between a higher loop of the ileum and the sigmoid. The patient then remained fairly well until September 1946, when diarrhea again occurred. There was an average of 6 to 8 watery stools per day, but on some days there were as many as 20 evacuations associated with progressive weakness and abdominal discomfort. This condition persisted from September 1946 to February 1947, at which time the patient was admitted to the hospital weighing 33 kg.

The patient was emaciated and pale, with a dry skin, slight atrophy of the fusiform papillae of the

TABLE 1.—*Blood Chemistry: Resection Ileum, Right Half Colon*

Date	Weight (Kg.)	Stools (No.)	Hemoglobin (Gm.)	Protein (Gm. per 100 cc.)	Albumin (Gm. per 100 cc.)	Calcium (Mgm. per 100 cc.)	Prothrombin Time (Sec.)	Vitamin A Units/cc.
1940	?	1–2	12.7	4.8	....	....	38(16)	....
1941	61.3	1–2	7.0				24(22)	
			4.4	7.4	5.1	10.3	27(22)	....
1942	59.8	Diarrhea	7.0	6.7	4.3	....	31(27)	....
12/46	50.1	3–5	10.7	4.1	2.4	4.6	41(15)	0.7
				4.7	2.8	6.3	16(14)	
1/47	50.2	3–8	10.5	6.1	3.7	8.6	17(18)	....
				5.9	3.8	7.9		
2/47	50.2	1–2	....	6.7	4.4	8.7	....	....
3/47	56.8	0–1	13.6	....	....	8.6	....	....
6/47	56.9	2–3	....	6.7	4.7	9.8	15(15)	0.9

Vitamin A tolerance curve: 0.7—0.9—1.0—1.6—1.2.
Glucose tolerance curve: 89—112—104—118—103.
Diet, Jan.-Feb., 1947: Cal. 4,200; P 230; F 140; C 520.

TABLE 2.—*Fluid Balance: Resection Ileum, Right Half Colon*

Date	Weight (Kg.)	Stools		Fluid Intake (Cc.)	Urine Output (Cc.)	Calories	Treatment
		Volume	No.				
1/1–1/24	51.0–47.0	....	3–8	....	300–500	3,000	Vitamins Atropine
1/25	47.0	2,000	......	2,730	587	2,855	Liver extract No vitamins No atropine
1/26	47.3	2,000	......	2,900	565	3,416	
1/27	47.68	3,000	......	3,000	663	4,110	
1/28–2/2	48.17–51.31	1,800	1–3	3,490	1,200	4,300	Liver extract Calcium
2/3–2/7	51.61–50.73	1,400	......	3,460	1,640	4,300	....
2/8–2/14	51.55–52.98	1,140	......	3,400	1,640	4,300	....
5/3	59.0	....	1–2	......	....	±4,000	Liver extract Calcium

tongue with some increased redness, and minimal clubbing of the fingers. Results of laboratory studies, shown in Table 3, indicate clearly the degree of malnutrition present on admission as evidenced by the low figures for hemoglobin, serum protein, serum albumin and vitamin A. It is of interest that there was no serious lowering of serum calcium, nor was there any prolongation of the prothrombin time.

For the first two weeks the patient was placed on a diet averaging 2,600 calories and without supplements. There was a weight gain of 1 kg. during this period, but no change in the number of stools. There was a slight increase in sense of well-being. For the next week vitamin concentrates were added in doses ten times the standards accepted by the National Research Council (B_1, 15 mgm.; B_2, 20 mgm.; niacin, 150 mgm.; vitamin C, 750 mgm.).

During this week the patient's tongue and mouth became increasingly sore, and rapid and complete atrophy of the filiform and fungiform papillae of the tongue occurred; in addition, there was a marked stomatitis. With these vitamin supplements there was an increase in abdominal cramps, and nausea developed. Despite these symptoms, there was a weight gain of 2 kg., presumably because the caloric intake had been increased to approximately 3,300 calories. At the end of this period the vitamin supplements were discontinued. Instead, a crude liver extract was administered daily, and a chemical agent* was given by mouth which tended to promote better dispersion of the fat content of the diet. The soreness in the mouth and tongue disappeared in a few days, and there was rapid regeneration of the papillae of the tongue. Abdominal cramps disappeared.

During the next two weeks the caloric intake averaged 4,200 calories per day, with a further weight gain of 2 kg. With this increase in weight there was a comparable improvement in all clinical symptoms and a steady restoration of a sense of well-being. Bowel activity was somewhat reduced, and the movements changed in character from liquid to semi-formed stools. Such a change is all that might reasonably be expected in the presence of an ileosigmoidostomy.

Since discharge from the hospital the patient has remained on the same regimen, with a further weight gain of about 6.5 kg. and a corresponding improvement in general clinical condition.

In this particular instance, nutritional difficulties again arose as a result of the removal of an important amount of absorptive surface plus an anastomotic operation. Again, overfeeding to the extent of more than 80 calories per kilogram of body weight, plus the administration of liver extract and a surface-acting agent ("Tween 80"), together with limitation of physical activity, resulted in a very appreciable gain in weight. Once more it is to be noted that in the presence of pronounced deficiency disease the administration of large amounts of specific vitamin concentrates produced unfavorable clinical symptoms.

NUTRITIONAL EFFECTS OF SUBTOTAL GASTRECTOMY

Subtotal gastrectomy, like any other surgical procedure, should be properly evaluated in terms of its general effects, as well as its effects on the immediate problem. It has been recognized by a few physicians that an important percentage of patients who have been subjected to this type of operation do not regain weight and strength after the operation. Recently the author has made a nutritional survey of a group of 209 patients with subtotal gastrectomy. Approximately one-third of the patients did not gain weight satisfactorily after the operation, and of this group one-half continued to lose weight or did not regain their preoperative weight at the end of a varying number of years. In other words, approximately 15 per cent of the entire group presented a nutritional problem of real importance, with resulting disability.

In Table 4, one can readily see the striking loss of weight following the operative procedure. The

TABLE 3

Date	Weight (Kg.)	Stools (No.)	Hemoglobin (Gm.)	Protein (Gm. per 100 cc.)	Albumin (Gm. per 100 cc.)	Calcium (Mgm. per 100 cc.)	Prothrombin Time (Sec.)	Vitamin A Units/cc.
1940	Normal 51.0	....	....	....	....	....	....	....
1941	44.0	6–12	....	....	....	....	....	....
1942	46.5	6–8	....	....	....	....	....	....
2/19/47	33.0	5–6 L	9.2	5.4	3.6	8.5 7.3	16 (16)	0.3
3/7/47	37.0	4–5	9.3	5.6	3.5	8.3	....	0.8
3/14/47	39.0	3–4 SF	9.3	....	....	....	....	0.5
3/29/47	41.0	2–4	12.3 (T)	6.2	3.6	....	....	....
4/15/47	45.5	3–4	12.4	....	....	....	....	....
5/27/47	47.7	3–4	11.5	6.8	4.3	8.7	15 (15)	1.1

		Calories	Proteins	Fats	Carbohydrates
Diet:	2/23/47	2,100	100	100	300
	3/4/47	3,300	115	136	410
	3/18/47	4,200	140	170	550

Liver: 3/14/47

Stool dried weight: 3/14/47—100 gm., 70%.

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* Polyoxyethylene sorbitan monooleate, registered under trade name of "Tween 80," provided through the courtesy of the Atlas Powder Company.

TABLE 4.—*Malnutrition Following Subtotal Gastrectomy*

Case	Sex	Age	Months P.O.	Weights (in Pounds)		
				Normal	Pre-op.	Post-op.
			D. U.			
1	M	57	6	....	171	159
2	M	45	25	150	134	127
3	F	55	18	131	113	106
4	M	60	9	175	124	112
5	M	40	42	150	128	119
6	M	56	18	125	111	96
7	M	64	21	....	148	115
8	M	60	36	170	142	128
9	M	65	24	158	142	117
10	M	61	18	170	165	147
11	M	50	40	152	134	110
12	M	44	36	178	165	148
13	M	52	40	169	140	138
14	M	37	28	144	141	128
15	M	48	42	135	130	123
16	M	60	57	125	117	100
17	M	40	27	150	....	140
18	M	53	15	141	140	129
19	M	61	18	142	137	121
			G. U.			
20	M	55	21	125	100	104
21	F	52	10	126	118	92
22	F	65	37	115	104	91
23	M	45	33	161	143	134
24	M	58	18	....	....	111
25	F	51	42	110	101	80
26	F	24	24	111	142	95
27	M	50	25	145	145	130
28	M	63	30	155	136	115
			STOMAL			
29	M	58	52	130	128	110

Average weight loss from original "normal" weight....27 lbs.
Average weight loss from preoperative weight..............16 lbs.

average weight loss in the entire group amounted to a figure of 27 pounds, when compared with the original "normal" weight. After operation the average weight loss for the group was 16 pounds, and it is to be noted that this weight loss covered a period of time ranging from 6 to 57 months, during which time adequate adjustment should have been made to the operative procedure if it was physiologically sound. The maximum reduction of weight from the original "normal" figure was 65 pounds (Case 4, Table 4). In many instances, the immediate preoperative weight was well below the normal figure for the individual patient, and therefore the continued postoperative loss assumed even greater importance. The extreme loss of 25 pounds, noted two years after operation in Case 9, was obviously the result of severe malnutrition, a condition which existed in many of this particular group.

It has been of interest to speculate as to the probable explanation underlying this failure to gain weight in the presence of what appeared to be a normally functioning subtotal gastrectomy and of what the patient considered a fairly normal diet. Undoubtedly, various factors contribute to the end result. Anorexia is a common component, at times combined with the "dumping syndrome." The author has noted, as have several other observers, that the stools of patients who have been operated upon in this fashion contain excessive amounts of fat. The obvious suggestion has been made that there is inadequate mixing of optimum amounts of pancreatic juice with food material to provide sufficient enzymatic activity at a high level in the jejunum. That this is not the entire explanation can be shown by the failure to increase to any important degree the absorption of fat by the administration of adequate amounts of potent pancreatic extract. Other possible explanations include the hypothesis that an important gastric secretion has been lost by the removal of the lower two-thirds of the stomach which may normally control absorptive processes by one or another means.

EFFORTS TO INCREASE FAT ABSORPTION

Detailed metabolic experiments were carried out in an attempt to get at least a partial answer from a physiologic as well as a therapeutic point of view. In a series of patients studied carefully on the metabolic ward, detailed observations were made with particular reference to stool fat and nitrogen determinations. The series was made up of patients who either had not gained weight or had consistently lost weight after an elective subtotal gastrectomy for ulcer. In these patients, the loss of fat in the stool ranged from 5 to 30 per cent of a daily fat intake approximating 100 gm. Normally one finds not more than 4 per cent of ingested fat in a well-controlled metabolic experiment. Various therapeutic measures were employed in an attempt to influence this failure properly to absorb fat. Large amounts of potent pancreatic extract were given with the meals; full therapeutic doses of bile salts were administered orally; and, on other occasions, hydrochloric acid, ventriculin (an extract from hog stomach effective in pernicious anemia), liver extract by mouth and by injection, and folic acid were given. No significant increase in fat absorption was noted after any of these measures, although they were carried out for periods of time sufficient to permit accurate observation.

The addition of a wetting substance, "Tween 80," alone of all the therapeutic supplements employed apparently produced an important diminution in fat loss in the stool. This substance permitted better emulsification and better dispersion of the fat taken at a meal, and to date has been the only measure that has been productive of any pronounced improvement in this particular absorptive abnormality.

The findings shown in Table 5 illustrate the results obtained by such a therapeutic measure in a patient who was carefully studied preoperatively, immediately postoperatively, and at a much later period. It is of interest to note that the immediate result of the operation was a striking increase in fat lost in the stool, from a preoperative normal figure of 3.2 per cent to a subsequent figure of 27 per cent. Seven months after operation an adjustment had been obtained which was accompanied by a loss of only 14.6 per cent of ingested fat. This abnormal loss was subsequently corrected by the administration of "Tween 80" with each meal. The use of this substance is still being studied, but it is believed to have been helpful in instances in which there was a demonstrable disturbance in fat absorption. It is

TABLE 5.—*Subtotal Gastrectomy*

	Period I Pre-op. Control	Period II 28 Days Post-op.	Period III 7 Mo. Post-op. Control	Period IV 2 Mo. Post-op. Therapy
Average calory intake	2,400	1,460	3,000	2,840
Fat intake, gm.	100	40	100	100
Total fecal solids, gm.	12.6	21.0	29.0	38.0
Total fecal fat, gm.	3.2	5.4	14.6	3.7
Fat, per cent dried weight	26	26	50	10
Stool fat, per cent intake	3.2	27	14.6	3.7
Split fat, per cent	58	75	82	18
Weight, kg. (normal 75)	60.8	56.4	62.5	62.6
			62.6	63.4

TABLE 6

	July 7, 1948	July 20, 1948	Oct. 28, 1948	Nov. 17, 1948	Dec. 14, 1948	Dec. 24, 1948
Stools	20	1–2	5–7	1–2	1	1 F
Weight (kg.)	41.8	43.0	44.6	43.5	48.3	49.3
Edema	2+	±	3+	0	0	......
Hemoglobin (gm.)	11.3	12.0	13.0	....	12.5	......
Albumin (gm. per cent)	2.0	3.9	2.1	2.6	4.26	......
Stool N (gm.)	....	....	....	2.5	2.2	......
Stool fat (gm.)	....	....	....	29.4	24.0	15.8
Diet: Calories	1,200	2,700	3,100	3,050	3,050	......
Protein	100	140	125	140	140	......
Fat	35	95	140	102	102	......
"Tween 80" (gm.)	0	0	0	0	6.0	0

nontoxic in therapeutic doses (40 to 50 mgm. per gram of ingested fat daily).

A final example should be added to further illustrate the nutritional difficulties incident to necessary but very radical anastomotic operations. The patient, a woman 25 years of age, had accidentally swallowed a large amount of lye, with resulting nearly complete destruction of the esophagus and stomach. After futile attempts to correct the situation by the passage of bougies, a resection of the esophagus and practically all of the stomach was carried out and a pharyngojejunostomy was performed in March 1948.

The nutritional problem posed by such an abnormal anatomical arrangement proved to be one of great magnitude. In the several months immediately following the operation, evidences of malnutrition increased steadily, with loss of weight and the development of anasarca. Diarrhea was a very disturbing symptom, but this was partially controlled by the elimination of iced drinks. Regulation of the diet was not adequately carried out by the patient, and it was not until she was readmitted to the hospital seven months after the operation that satisfactory therapeutic measures and careful studies could be carried out. At this time, as shown in Table 6, she weighed 44.6 kg., or approximately 24 kg. under her original weight before the accident. It was impossible to determine her actual weight because of the presence of pronounced generalized edema.

At this admission she exhibited a good deal of mental confusion, was extremely weak, and had most of the physical signs of serious deficiency disease, with a dry skin, red tongue, rapid intestinal rate, and striking hypoproteinemia. After many difficulties, dietary regulation was accomplished, both as to content and time of feeding, etc., with an associated regulation of activity. Eventually a constant daily dietary intake of approximately 3,000 calories was obtained, containing 140 gm. of protein, 102 gm. of fat, and 400 gm. of carbohydrate. The parenteral injection of crude liver extract and the constant use of tincture of opium had been initiated some three or four months after the operation, and had been continued in order to maintain a comparable regimen. These last two measures had proved inadequate in controlling the situation, which eventually was managed only by strict regulatory measures, by real overfeeding (70 calories per kilogram of body weight) and, again, possibly by the addition of "Tween 80." The use of liver extract may have been beneficial, but no such deduction can be drawn in this case.

It is of interest that even with the very rapid jejunal filling and the lack of gastric motor and secretory control, adequate absorption of nutrient material was possible, as evidenced by gain in weight, loss of edema and slowing of intestinal rate, together with the return of the serum albumin to a normal level. It will be noted from the figures in Table 6 that, following the addition of "Tween 80" to the diet, the fat content of the stools was reduced from 29.4 to 24.0 gm. a day, and subsequently to under 16 per cent of ingested fat. When the administration of "Tween 80" was discontinued, the fat content of the stool slowly but steadily rose. At present the patient is in fairly good nutritional control and has gained back a total of approximately 15 kg. in weight, with complete disappearance of edema, complete clearing of mental confusion, and with the disappearance of the external manifestations of deficiency disease.

DISCUSSION

From the facts set forth, it is quite obvious that serious impairment in the absorptive function of the small bowel occurs in an important percentage of patients who have had major anastomotic operations involving the small bowel or associated with the operation of subtotal gastrectomy. Although the facts are still incomplete and although the various factors involved are far from being thoroughly understood, it is apparent that the eventual explanation will add vastly to our knowledge of small bowel and gastric function as it relates to the absorption of foodstuffs.

The nutritional disturbances that have been discussed differ in detail and in magnitude, but the general factors involved have many things in common and are worthy of note because of the therapeutic needs that are apparent. It is obvious that prolonged overfeeding in the full implication of the term is essential in order to maintain adequate weight and strength. The diet must contain excessive amounts of nitrogenous material, as well as additional calories, to cover a certain amount of wastage. Bulky foods must be avoided so as to eliminate the mechanical effect of large food residues, which aggravate the changes caused by the alterations in intestinal motility characteristically found in these patients. In addition, it is quite probable that certain supplemental food substances are necessary to promote adequate absorption and utilization. Of these, crude liver extract seems to be one important factor; a fat-emulsifying substance may be another. The administration of vitamins and other supplements is indicated only to cover specific deficiencies, and their use does not need to be continued for any length of time. At times, vitamin concentrates may aggravate rather than ameloriate the symptoms in the presence of severe deficiency disease.

* * *

A Panel Discussion

"Rooming-In" for Mothers and Infants

- OBSTETRICIAN'S POINT OF VIEW—Philip A. Reynolds, M.D., Los Angeles
- PEDIATRICIAN'S POINT OF VIEW—Robert G. Shirley, M.D., Beverly Hills
- PSYCHIATRIST'S POINT OF VIEW—Norman A. Levy, M.D., Beverly Hills
- NURSING POINT OF VIEW—Margaret J. McGuirk, R.N., Pasadena

PREFACE

The rooming of mother and newborn infant together during the lying-in period has been practiced on a limited scale in several obstetrical centers for about two years and is being considered as a desirable procedure by many other obstetrical departments. In fact, the idea has seemed so practical and desirable and the popular demand has become so general by mothers that it seems timely and appropriate to discuss the whole concept and the many facets of rooming-in. It is not the purpose of this panel discussion to attempt to sell the idea of rooming mother and baby together. The purpose is to review the advantages and disadvantages and help make it possible to arrive at an intelligent evaluation of the procedure.

—PHILIP A. REYNOLDS

Obstetrician's Point of View

PHILIP A. REYNOLDS, M.D., *Los Angeles*

THE rooming of mother and child together during the lying-in period is the original natural care still practiced by most European hospitals and of course by all primitive societies. It is the natural concomitant of all home delivery services. At the end of the second world war, Dr. James Clark Maloney of Detroit reported a study of the relationship of breast feeding and neuroses in the society of the island of Okinawa. Pediatricians among his colleagues in Detroit were so impressed with the concept developed by Dr. Maloney, that there is a relationship between breast feeding and the emotional development of the infant, that they formed a group called the Cornelian Corner to promote the idea that, if mother and baby could be roomed together, demand feeding could be practiced from birth and the incidence of breast feeding would be greatly increased.

The idea spread rapidly. Such centers as the Yale Medical School and Grace New Haven Community Hospital, the Jefferson Medical College Hospital in Philadelphia, the Washington University Hospital in Washington, D. C., and many others have established rooming-in units. In February, 1948, the Macy Foundation in New York City called together many of the people interested in these studies for a general conference. This conference is some indication of the degree of importance the plan holds for the leaders of obstetrical and pediatric practice. So far all the reports from these centers have been favorable. In Southern California the only rooming-in units started so far are at the Huntington Memorial Hospital in Pasadena and the Hospital of the Good Samaritan in Los Angeles, and these have not been in operation sufficiently long to permit valid conclusions from experience.

The change from the original rooming-in of mother and baby in home delivery came with the establishment of modern hospitals and nurseries. This change was made in what were considered the best interests of mother and baby and was primarily for the purpose of reducing maternal and infant morbidity and mortality. Secondarily, of course, it made the practice of obstetrics infinitely more convenient for the physician. Great gains have been made and it is important that these gains be maintained and that rooming-in be explored with the thought in mind that these improvements in medical care must not be lost by adopting what may be an unwise or impractical procedure.

Frequently, attack upon a problem in whatever field, whether medical or social, goes further than it is necessary or advisable to go in order to gain an end. Some physicians believe that this is what has occurred in obstetrical and pediatric care and that, with great advantage to mother and baby and with no loss of safety for them, the present conventional rigid routines of care might be relaxed in order to allow mother and baby—and father also—to enjoy themselves a little more.

This panel discussion was held before the Section on Obstetrics and Gynecology at the 78th Annual Session of the California Medical Association, May 8-11, 1949, in Los Angeles.

Comparison of the present routine with the routine that might replace it in a rooming-in unit is in order. In passing it might well be noted that it behooves all physicians to examine all routines occasionally to discover the purpose of them. The author's experience is that in a surprisingly large number of cases routines are discovered to be established for the purpose of convenience of the physician or hospital personnel rather than for scientific value. In present conventional practice the mother frequently does not see her new baby until many hours after birth. The author is convinced that this unnatural procedure is primarily for administrative convenience and that it is the cause of a great deal of anxiety in the mother. After the long months of waiting it would seem only fair that the mother, having successfully accomplished delivery, should have the satisfaction of having her baby with her at least as soon as she is awake. Physicians probably vastly underestimate the amount of fear patients have that their babies will either be born dead or be abnormal: too few recognize that the hours of waiting for the actual reassurance of inspecting the infant are often agonizing ones for the mother. Rooming-in specifically takes care of this problem.

Under present routine the baby is placed at breast every four hours if the mother plans to nurse. If the baby is to be bottle-fed it may be brought to the mother only once a day. Fortunately, in some hospitals the bottle-fed babies are taken out on schedule to be fed by their mothers. The failure or refusal of mothers to breast-feed their babies has been blamed on all sorts of things from tight brassieres to complete rejection of the maternal role. Actually the principal reason for failure is the insufficient stimulation of the breast resulting from inability, under present conditions, to put the baby to breast on demand—that is, when the baby manifests its need for sucking or food. This rigid four-hour schedule results in a frustrated angry infant who is asked to nurse perhaps hours after he first felt the need for food. These babies often traumatize the mothers' nipples in their famished chewings, or in their anger refuse to take the breast at all. The breast is stimulated and emptied so infrequently that lactation is often absent or insufficient and the whole procedure is abandoned in despair. (This problem and the emotional trauma suffered by baby and mother in these circumstances will be discussed by other participants in this symposium.) By contrast, rooming-in places the baby at the mother's bedside for demand feeding, early and efficient stimulation of the breast, and for the personalized love and attention that the newborn requires for the establishment of a sense of security.

Under present routines the mother of a first-born has only a minimal opportunity for getting acquainted with her baby. She sees it for short visits at the four-hour nursing period, a period all too often one of frustration and anxiety. She leaves the hospital without acquiring any of the skills and experience needed for its care at home and without having become accustomed to the physical and emotional reactions of her baby. At home everything is strange and frightening and her tensions are transmitted to the baby with resulting feeding problems, a crying, irritable baby and many frantic phone calls to obstetrician and pediatrician. In rooming-in she becomes well acquainted with baby care—with such things as the character of the stools, the reaction of the skin, hiccoughs, the peculiar breathing, care of the navel—indeed with a multitude of things so easily taken for granted by nurse or physician but which are to her tremendous mental hazards. The transition from hospital care to home care is easy. She has experience.

Under present routines of obstetrical care, the father is too often "the forgotten man." During the prenatal period, the father is often isolated sexually. Consciously or unconsciously he suffers from feelings of rejection. The prospective mother is the center of interest and concern. The father's one moment in the delivery room when he acknowledges parenthood by signing for the baby is soon over and he again becomes a minor actor with the privilege of a short daily visit with his wife and a few moments of viewing his baby through the glass barrier of the nursery windows. Under a rooming-in plan, he may don a gown, wash his hands and, with safety to mother and baby, visit both of them. He may even observe some of the techniques of the baby's care and hold his baby. He has a sense of greater participation and loses his feeling of rejection, which makes for the establishment of the family triangle on a cooperative basis.

Under present routines many babies are placed in one nursery. It is now believed that this increases the danger of epidemic infection through cross-infection. Rooming-in isolates the baby more effectively and tends in case of infection to localize it.

The objectives in obstetrical care have been, and of course still are, the reduction of maternal and infant morbidity and mortality. The question then is, can these objectives be enlarged to include the objectives of rooming-in without endangering the gains made in the past. To summarize, these new objectives are:

1. A secure mother prepared by experience and training to care for her newborn at home.
2. A secure breast-fed infant free from the frustrations produced by a too rigid feeding schedule and contented in the attention and love that the mother is able to offer it from birth.
3. Early establishment of the family triangle of mother, father and baby.
4. A reduction in the incidence of nursery epidemic infection.

How difficult is it to establish rooming-in in a hospital? Experience would indicate that it is not too formidable a problem. (Another discussant will give details.) It seems unlikely that any obstetrical department will ever reconvert completely to rooming-in. Most authorities feel that rooming-in should be made available specifically for those women who wish to nurse their babies, and who are temperamentally fitted for it. It is apparently true, however, that more and more women are changing their minds and asking for the privilege of breast-feeding. Many are emancipating themselves from the idea that has become too prevalent, that it is stupid and old-fashioned to breast-feed, and are asserting their instinctual needs. There will probably always be women who will wish to avoid the responsibility of care of their babies and who will prefer to look upon their hospital stay as a vacation. However, an increasing demand for rooming-in may be expected as more women hear of the idea and as they are offered increasing opportunity for participating in it. It is the author's opinion that unless newly constructed maternity floors include facilities that may be used either for rooming-in or conventional care, they will be obsolete within a few years.

More important than the simple physical arrangements required for rooming-in are the reorientation and indoctrination of the personnel working in the new program. Without a thoroughly cooperative attitude on the part of staff and nurses, such an intimate arrangement could easily fail. Any change in point of view and routine inevitably tends to create intense resistance and often active hostility. This reaction was beautifully demonstrated during the period when early ambulation was looked upon by many as a radical and dangerous retrogressive procedure. Thus the educational task is no small one. It not only involves the gaining of unity of thought and action in medical and nursing personnel, but it places upon the physician the responsibility of presenting the rooming-in facility to his patient in the right light and of selection by him of suitable patients.

The patient should be one who wishes to nurse her baby. It is probable that many patients who say "no" to nursing do so because they have not had the advantages to the baby intelligently presented to them. The patient should be the emotionally mature woman who is ready and capable of accepting responsibility. She should have had a normal delivery. She should be thoroughly informed prenatally of the arrangement of the rooming-in set-up. For example, she should know that she is to have only one visitor—her husband (if that is the rule of the unit)—but she should be reminded that, as compensation, her husband will be allowed to visit with both her and their baby. She should know that she will be expected to participate in her own and her baby's care as her physical capacities warrant. She should be reminded that a certain amount of give-and-take in relationship to the mothers and babies in the same unit will be necessary, but that experience shows that the loss of rest from activities of the other occupants of the ward is minimal. She should be warned that the facilities are limited and that she may suffer disappointment if, at the time of delivery, all the beds in the unit are filled.

Many questions inevitably present themselves for discussion and solution. Most of them can be answered only by experience:

1. How soon should the baby be placed with the mother? This involves the degree of sedation and the type of delivery and anesthetic as well as the condition of the baby.
2. Should the mother have more than one visitor? No doubt many patients who would desire rooming-in will be faced with the bitter opposition of possessive mothers if they are not allowed to visit. (What really is gained by not allowing the grandparent to take a turn in visiting?)
3. How soon should the patient start care of her baby and how much should she do?
4. How much sedation can be given for sleep or for relief of perineal stitch pain?
5. How much sleep will she lose and what of the fatigue factor?
6. In case of physical or emotional upset in the mother, requiring transfer from the unit, need the baby be sent to an isolation nursery?
7. Does the rooming-in patient require more nursing hours and can the unit operate on an economic level comparable to that of conventional care?
8. Are there any medicolegal hazards?
9. How valid are the conclusions of the psychiatrists that the conventional care of the baby now generally practiced tends to create emotional states which have effects on its subsequent development?

These and many other questions will be discussed by members of the panel.

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Pediatrician's Point of View

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UNTIL recent years the pediatrician has been concerned primarily with the medical and nutritional care of the infant, the child, and the adolescent. The advent of various chemotherapeutic and antibiotic agents has taken a great load off the shoulders of pediatric institutions, nursing and medical personnel, and practicing pediatricians. Now there is time to take stock of the situation and to investigate fields of endeavor which may have been ignored in the excusable concern over the medically ill child.

The solution to the neurotic disorders and behavior disturbances of children and adolescents is one of the major problems confronting the pediatrician and pediatric psychiatrist.

Under the leadership of child psychiatrists and psychologically minded pediatricians, an amazing and much belated change is occurring in the management of infants and children. The current trend in infant feeding is to the use of the so-called "self-demand" or "ad lib" feeding schedule in which the infant is put to the breast or offered a bottle when it shows a desire for nourishment. It is now recommended that parents rock, cuddle and sing lullabies when the baby seems upset. Strangely enough, it is now considered a good idea to change the wet or soiled diaper when the baby is obviously annoyed by it. It is not too uncommon in these days to have a mother, rather embarrassed, admit that her 18-month-old infant is not yet trained for bladder or bowel control. A few years ago the ridicule of the neighbors and the firm hand of the grandmothers would have prevented such an admission. All of these changes in attitude indicate recognition, at long last, of the fact that babies are human beings.

There are undoubtedly many who predict that the newer attitudes will give rise to a generation of spoiled ne'er-do-wells. Aldrich[1] has said: "Anyone who cares to do so may study, as I have, the early history of spoiled children. In vain will he search for a study of indulgence at the start. With tiresome regularity he will find the same old tale of strict adherence to rigid forms of child training and an inhuman sort of reliance on the theory that affectionate treatment is bad for babies."

There is ample evidence from the increase in juvenile delinquency, the overloaded psychiatric institutions and the astounding percentage of rejections of candidates for military service on a psychiatric basis, that there is something radically amiss in the mental hygiene of infants and children. An appreciable percentage of the personality disorders of adults have their origin in early childhood.

Proposed as an important adjunct to the many factors embodied in the solution to this problem is the rooming-in plan, which is intended to establish, during the lying-in period, the normal biological relationship between the mother and her newly-born infant. The importance of the establishment at an early age of this mother-infant relationship is based on the recognition of the importance of the family group as the basic social affiliation and on the belief that later behavior problems and psychoneuroses have their origin in the frustrations, fears, tensions and feelings of insecurity promoted in early infancy. The newly born infant is a mammal who has spent approximately nine months within the uterus as an aquatic parasite. Immediately after birth he is faced with the problem of oxygen and food intake, digestion and elimination. He is obliged to become adjusted to an entirely different environment and, in most hospitals, to a man-made routine entirely foreign to his mammalian instincts. As a mammal, the human infant needs close tactual contact, cuddling, rooting, suckling and mothering. Body odors are important in establishing security. Frequent nursing is one of the major stimuli to lactation. The psychological benefits to the infant and mother have been offered as one of the major advantages to the rooming-in plan.

Another important item is the practical benefit to the mother. The new mother, in particular, is apt to be completely bewildered by the time she returns home with her newly born infant. The flood of pseudo-scientific articles in the popular magazines, the exaggerated importance of the array of vitamins established in parents' minds by slick radio commercials and newspaper advertising, the dire consequences, tossed about by bridge table consultants, to not using certain milks and carbohydrate preparations—these are enough to make a new mother a very apprehensive and intimidated individual.

It can hardly be said that present hospital routines have been established with the thought of alleviating this situation. Yet the period of hospitalization is the ideal time for the mother to become familiar with the sleeping, eating, bowel and various other habits of her baby. This is the time to put a halt to the frantic expression of fear which is heard far too frequently from the departing mother, "Doctor, I don't know the first thing about babies and I'm scared to death. I will probably be calling you every day." Jackson,[4] in relating the development of the rooming-in unit at the Grace New Haven Community Hospital, mentioned the results obtained from a three-month survey of the problems for which mothers of newborns seek help during the first month following discharge from the hospital. The evidence indicated that the mothers were not prepared, during the period of hospitalization, to understand babies or to assume care of them. Mothers were often afraid to handle their babies and were unnecessarily anxious about normal reactions.

Another complaint, and one which brings up another major advantage of rooming-in, is commonly expressed by the mother who is nursing her baby: "I will certainly be glad to get out of here. I no sooner get the baby settled down and nursing well when they come in and take him away again."

It is not the purpose of this presentation to enter into a discussion of the advantages of breast feeding for the normal full-term infant. However, it may be emphasized that breast milk is superior nutritionally to any other for the normal full-term infant. The tremendous efforts to alter cow's milk by various means so that it approximates the composition of breast milk are justification enough for the belief in the superiority of breast milk. Bartlett[3] begins his book, "Infants and Children," with the remark, "Human milk is meant for babies, cow's milk is meant for calves."

Only recently have the psychological advantages of breast feeding received proper emphasis. The "demand feeding" schedule is gaining general acceptance and fits in well with the principles of the rooming-in plan. MacDonald,[5] in a recent review, pointed out the lower incidence of carcinoma of the breast in women who breast-fed their offspring. These are just a few of the many very good reasons for breast feeding.

Montgomery[7] and co-workers found that 83 per cent of mothers cared for in six-bed wards under the rooming-in plan were still nursing their babies one or more months after discharge. Barnett,[2] however, from observations in a small hospital at the Los Alamos Project did not gain the impression that the incidence of breast feeding was increased by the rooming-in plan.

Moloney[6] and co-workers reported on a personal communication from Mead who stated that with primitive peoples who nurse their infants almost constantly during the first few days of life, there is almost a complete absence of cracked nipples. This is attributed to the fact that the infant who nurses so frequently does so only briefly and without the pull which the infant on a four-hour hospital schedule is capable of exerting. The experience of Moloney has borne out this theory.

Jackson[4] and co-workers and Moloney have mentioned the interest which this plan has stimulated not only in mothers but also in fathers. Jackson, of the Yale unit, expressed it: "Because of the enthusiastic participation of fathers in the project from the day of inception, the authors were inclined to entitle the paper 'Rooming-in for Parents and Newborns'." The fathers were allowed to hold the baby, change diapers, give water and perform other minor duties which made them feel a part of the show.

There has been no evidence to date that the incidence of infections among newborns under rooming-in conditions is greater than among infants cared for conventionally. It has been suggested that under rooming-in plans infections will be noticed earlier by the alert mother and therefore brought under more immediate control. It is the trend in all modern hospital construction to eliminate the large nursery and to make use of eight-bed or smaller nurseries. The purpose of this is to eliminate the tragic nursery epidemics which occur periodically.

Many hospitals throughout the country are making alterations in their present facilities or incorporating plans for rooming-in facilities in new construction. There are, of course, some valid objections to rooming-in plans, but compared to the advantages they are minor and not insurmountable. The day will come when rooming-in will be a facility of every progressive hospital, available to any mother who desires to participate.

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Psychiatrist's Point of View

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In the first conference on the Problems of Early Infancy held in New York in 1947, Margaret Fries emphasized the advantages of the "rooming-in" plan to the mother, to the child, to the physician and to the father and family. It has already been stated that the early mother-child relationship has important implications for the emotional development of the child.

Modern dynamic psychiatry regards early childhood experiences as crucial in the development of the personality. This applies to the development of healthy emotional patterns as well as to poorly adaptive or neurotic ones. It is essential, therefore, that physicians have an adequate scientific understanding of the personality and its development, so that they can properly advise parents in their efforts with their children.

It is important to understand what is meant by "emotionally healthy development." Essentially it means emotional maturity. The mature adult is one capable of independence and self-reliance, but able at the same time to satisfy dependent needs in his intimate personal relationships. In other words, there must be a reasonable balance of independent and dependent strivings. The individual must be capable of a mature giving of love and sexuality, which will make possible being an adequate marital partner and parent, capable of forming a family, of working, and of taking the responsibility of satisfying the emotional and physical needs of those dependent on him, the marital partner and the children. In addition, the mature adult has the capacity to enjoy these activities of life, and possesses the ability to function as a responsible citizen in the community.

Childhood represents the transition phase between the completely dependent parasitic intra-uterine existence of the fetus, and the pre-adult period of adolescence, following which complete independence of the parents is finally achieved. This metamorphosis must be a gradual one, as the human infant is completely helpless during a long neonatal period. His physical maturation is very slow. Due to the complex society to which he must successfully adapt himself, his emotional maturation requires a much longer period of time than his physical maturation.

At birth, the infant is ejected from his intrauterine existence in which all his needs are automatically satisfied by the maternal circulation and surrounding fluid and tissues, in which he experiences a minimum of physical tensions and therefore little or no painful frustration and anxiety. In contrast, the neonatal infant, completely helpless and dependent on the mother's ministrations for the satisfaction of his physical and emotional needs, for the first time experiences painful tensions, frustration, anxiety and rage, especially with the hunger experience. It is hardly surprising that he is especially vulnerable to intense feelings of insecurity. It is the consensus of opinion that freedom from excessive tensions and anxiety during infancy is essential if the child is to develop the feelings of inner emotional security without which his development is often impaired. Successful acquisition of new and more mature functions and activities is much easier for the infant and child who is free of anxiety. It has repeatedly been observed that the anxious child is reluctant to give up well-tried and satisfying infantile emotional and behavior patterns and attempt new untried ones. He tends to remain on an infantile level because his fears and anxieties make unfamiliar activities seem dangerous to him.

How can one best assist babies to achieve this desirable and necessary feeling of security and freedom from tension and anxiety? This task is accomplished by the mothering which the infant can best receive from its own mother, whose love and maternal feelings almost instinctively motivate her to give to her infant exactly the kind of satisfaction and gratification he needs. With the pleasurable satisfactions of his needs, first physical, then emotional, come the feelings of security which make him a contented and placid baby. Experiencing over and over again that a loving and tender mother gratifies his needs and wishes, the infant develops the inner feeling of expectation that his needs will be gratified, thus permitting a feeling of security. The infant naturally lacks the capacity to tolerate thwarting. Consequently, when thwarted, he is overwhelmed immediately by intense feelings of anxiety and rage. Only later, when his developing neurophysiological, especially cortical functions, permit an increased awareness of his environment and of external reality, does he acquire the capacity to tolerate frustration a little. This comes about slowly and gradually, and does not exist at all in early infancy. It is for this reason that severe frustrations occurring during this early infantile period can be so crippling to the personality.

The infant's fundamental needs are for food, warmth, and protection from disturbing external stimuli. Although there is a basic similarity in different infants' needs, there are certain constitutional differences in the intensity and rhythmicity of their recurring physiological needs, especially hunger. Experience has demonstrated that the schedule of the infant's activities is best determined by the natural rhythm of his physiological needs. The so-called "scientific" methods of the early decades of this century which artificially enforce rigid schedules on the child require an adaptation for which the child is not ready, and therefore often permit the development of excessive tension, anxiety and insecurity. This can be avoided by adapting the feeding and other schedules to the child's natural rhythm. This is called the "demand" system, as the child is fed when his behavior indicates he is hungry. Similarly his other activities, such as sleeping and playing and, later, evacuation, are regulated by the child's needs, and not by an artificial schedule imposed by the mother or nurse. It is felt that the "demand" system affords the child the maximum gratification of his needs and helps him to begin life with a maximum degree of emotional security.

It is extremely important to understand that the simple prompt satisfaction of the infant's physical needs is not sufficient for its proper emotional and personality development. A successful and happy life depends a great deal on the individual's capacity for successful interpersonal relationships, that is, the capacity to give and receive love. This in turn depends partly on the child's first experiences with love, obviously with his first love object, the mother. The warm, tender love of the mother, which finds repeated opportunity to express itself in the physical care of the baby, brings deep pleasure and satisfaction to the infant and small child. This is best achieved through intimate physical contact with the mother, such as occurs when she nurses her infant. To a lesser extent it takes place whenever she handles him, when she cleans him, fondles and plays with him. The nursing experience itself is probably the most significant experience of infancy. Along with the blissfully satisfying relief from painful hunger, the nursing infant experiences the physical and sensuous touch and warmth of the mother's body, her breasts, and her arms.

Psychiatrists have learned from children and from our adult patients how invaluable an intimate physical and emotional relationship is, and how disastrous the lack of it can be. Without the experience and knowledge of warm maternal love, the child will frequently not consciously desire it, and may never have the capacity to give it. The result is a cold, unloving individual who neither wants nor gives the genuine love and sexuality which make intimate human relationships possible.

Nursing at the breast brings much satisfaction to the mother also. When not inhibited by neurotic emotional attitudes, it is a deeply gratifying sensual and emotional experience which she shares with her infant. This helps to bind them together with a strong bond of mutual satisfaction, pleasure and love, thus establishing the basis for future love relationships.

It is largely for this reason that certain psychiatrists have become interested in "rooming in," as it provides, in the artificial and unnatural atmosphere of the hospital, the natural setting for mother and infant. In this setting the infant can begin its life as it should, with its mother. It can be fed by its mother when it is hungry, it can be washed, cared for, caressed and loved by its mother. Thus a continuity exists from the prenatal intra-uterine existence, the most intimate mother-infant relationship, into the postnatal period of infancy without the artificial interruption which is the rule during the lying-in period. With her infant in a crib next to her bed, the mother is instantly aware of its needs, when it wakes up, when it cries. The infant does not have to depend on busy and frequently impersonal nurses and does not have to "cry it out." The mother and child become accustomed to each other from the very beginning, so that no period of adjustment is necessary after they arrive home.

It can legitimately be asked whether "rooming-in" is advisable for all mothers. As the plan is still very much in the experimental stage, much more data must be collected before such questions can be adequately answered. In those few hospitals in which a rooming-in unit is functioning, the demand by prospective mothers has been much greater than the limited facilities could satisfy. Naturally only those women actively desirous of "rooming-in" have been selected. This means on the whole that the more maternal and less ambivalent women have been used in the experiment. How the immature narcissistic woman who exploits her child for her own pleasure by "loving" it too much, or the over-anxious insecure mother, or the hostile rejecting mother, and the more ambivalent mothers will be affected by the "rooming-in" experience is unknown. The author suspects that "rooming-in" might prove to be especially beneficial for just such neurotic mothers. as their attitudes and behavior could be scrutinized by the professional nursing and medical personnel, which could lead to fruitful therapeutic and educational discussions. The obstetrician, the nurses, and especially the pediatrician, can utilize this lying-in period to instruct the mother not only in the proper physical care of the baby, but also in the very important subject of the baby's emotional needs. Especially, it gives the doctors and nurses an opportunity to emphasize the tremendous value and importance of genuine motherliness and to encourage the maternal strivings of their patients. Unfortunately, the medical and nursing staffs of most hospitals have for the most part done exactly the opposite. The obstetrician, because of his close relationship with the prospective mother, is in a particularly strategic position both prenatally and during the lying-in period to exert powerful influence in the proper direction. In fact, the development and success of this project depend largely on the active interest, understanding and participation of the obstetrician. Thus, to the accomplishment of bringing a mother and infant safely through pregnancy and delivery, the obstetrician can add that of aiding in the initial establishment of the all-important mother-child relationship.

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Nursing Point of View

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At the Huntington Memorial Hospital a rooming-in experiment, limited to four beds, was put into effect December 6, 1948. The normal, full-term infant, in its own crib, is placed at the mother's bedside 24 hours after birth and remains there until departure from the hospital. There is as yet no cubicle provided to place the baby in the confines of the mother's room. Mother and infant care is provided by the same nurse instead of by two entirely separate groups of nurses.

In the interval between the beginning of the project and April 22, 1949, 575 mothers were delivered, of whom 24 have made reservation for rooming-in.

As the experiment is being carried out in an existing building, conditions for rooming-in are not ideal. Two semi-private rooms that were easily converted were chosen for the project. They are fairly large and are soundproofed. Being directly across the corridor from each other, they provide easy access for the nurse. Both rooms have private baths, wash basins and two large windows. Each accommodates two beds for adults, two cribs, two portable screens, a bureau on which is a breadbox for small equipment and a bottle warmer, two bedside tables, a flower table, a portable table for scales, two straight chairs, one easy chair, a diaper pail, a laundry pail and a waste basket. When the rooms are not being used for rooming-in, the excess equipment is removed and they are reconverted to conventional semi-private units.

If a new building were built with rooming-in as the general pattern, undoubtedly small nurseries would be placed adjacent to the mothers' rooms. Lacking such facilities, the staff at Huntington Memorial Hospital hopes to obtain some of the new bassinet units which provide adequate space to store all equipment and linen for each baby, and have glass sides about 22 inches above the bassinet to protect the infant from drafts and cut down somewhat on the likelihood of air-borne infection.

Although ultraviolet lights are used in the conventional nurseries and in the formula room of the hospital, such lights have not as yet been installed in the rooming-in units. This might be desirable.

At no time thus far have all four beds in the rooming-in rooms been occupied at one time. Therefore, neither theory nor experience would give an accurate account of cost to the hospital.

A pamphlet on "A Study of Nursing Service in Twenty-one General Hospitals," published in 1948 by the National League of Nursing Education, recommended three hours of nursing care in each 24-hour period as a median standard for postpartum mothers. This may be 65 per cent professional and 35 per cent non-professional. The median standard recommended for newborn infants on general care was 2.8 hours of nursing care in each 24 hours. This may be 77 per cent professional and 23 per cent non-professional. Thus, one nurse may be assigned six to eight patients, the number depending largely upon the type of care required.

ASSIGNMENT OF NURSING DUTIES

Due to the small number of reservations for rooming-in at Huntington Memorial Hospital, the nurses

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have been able to combine the duties of conventional postpartum routine with those of the rooming-in plan. Thus, it is not unusual to assign one nurse to care for four mothers and two babies from 7 a.m. to 3 p.m. Because most of the work and teaching have been done during these hours, the duties in the following eight hours may be carried out successfully by a non-professional worker under the direct guidance of a professional nurse. Duties in the remaining eight hours are not too strenuous for the professional night nurse, as most babies sleep for long intervals.

During a five-day period, with such an arrangement of assignment, the daily nursing service has ranged from 2.8 to 4.04 hours per patient in each 24-hour period. The total average nursing service for the week was 3.18 hours per patient.

As it was recognized that the obstetric and nursery departments have been under a rather inflexible routine, the graduate staff nurses were asked to volunteer for this project. At first the assignment was received with little enthusiasm. However, after the purposes of the project were explained, and the nurses saw an opportunity to teach in a family unit, the duty was readily accepted. Nurses who had not been exposed to nursery routine for a long time decided to get some of that experience in order to integrate postpartum and infant care without confusion of ideas. This helped them to understand pediatricians' as well as obstetricians' viewpoints.

Nurses soon learned that mothers were anxious to nurse their babies; that the "demand feeding" appeased the baby's hunger and simultaneously stopped the crying; that the baby adjusted himself to his own schedule. Nurses learned also to take care of the babies individually rather than quantitatively.

Nurses on this service are requested to keep their hair neat, preferably by having a hairnet. This eliminates wearing headgear. Masks are also omitted.

METHOD OF PROCEDURE

In order to be prepared to provide adequate nursing, it was agreed that mothers who expressed a preference for rooming-in care should make reservations well in advance. A letter was composed and signed by the administrator, covering briefly the advantages and disadvantages of the experiment (breast feeding was stressed as a major part of the project), along with suggested reading material on the subject. Mimeographed copies were sent to all the obstetricians, who in turn give them to the patients most interested in the plan.

Five reasons for not placing the baby at the mother's bedside during the first 24 hours after delivery are:

1. The effect of pre-delivery sedation causes the patient to be relaxed and oblivious to what is going on about her. If her baby were near, she would feel an immediate sense of responsibility and become nervous.

2. In the event the baby has an excessive amount of mucus, oozing from the cord or circumcision, it can be observed and cared for in the nursery without letting the mother become unduly alarmed.

3. The baby has a better stabilization of body temperature in a unit where there is less traffic to cause varying degrees of room temperature.

4. The nurse has a better opportunity to instruct the patient about her own care without being distracted by the baby.

5. The rooming-in nurse has a better opportunity to rotate the care of the mothers and infants and to organize her work, since she does not have responsibility for the care of the baby for the first 24 hours.

At the end of the first 24 hours, the mother has had a fair amount of rest, has been out of bed to go to the lavatory, and has been instructed in her own care. Due to early ambulation she is now better prepared to participate in the responsibility of caring for her infant.

The baby is then placed at the mother's bedside and during the next 24 hours occupies more than 50 per cent of the nurses' time. This is taken up by the demand breast feedings; instructing the mother in heating and giving the complementary formula or sterile water; teaching the mother how to handle, bathe and diaper her baby; care of the umbilical stump; care of the circumcision; helping the mother keep a daily "score chart" about all the activities of her infant during each 24-hour period. A daily summary is then transcribed to the infant's permanent hospital record by the nurse. Various questions are answered and when necessary the answers are accompanied by demonstration. The nurse also instructs the father in the proper method of handwashing and putting on a hospital gown before visiting and handling his infant.

Beginning the second day, the mother demonstrates to the nurse what she has learned in the care and feeding of her infant. A two-hour schedule is usually established on this day, with varying intervals at night.

On the third day, it is observed that the baby is practically on a three-hour feeding schedule, including complementary feedings, during the day, and from 10 o'clock at night until 7 o'clock in the morning chooses a varying interval of two to seven hours. Flow of breast milk is usually well established and the baby receives from one to three ounces per feeding. The patient by this time has become more confident in her ability as a mother, and actually assumes the full care and feeding of the infant. She no longer feels insecure and the nurses' time is reduced by at least 50 per cent.

By the fourth day the infant is on a three- to four-hour schedule. The mother finds time to have frequent rest periods during the day and is not too fatigued to sleep at night. Barbiturates and opiates are not given to rooming-in mothers because of the problem of excessive drowsiness in the mother. When a mother starts to nurse her baby at night and suspects she may be too sleepy to stay awake, she puts on her call light. The nurse then checks frequently to be sure the mother stays awake and the baby is safe. If a mother is too tired to give a feeding during the night, the nurse gives the baby a formula and the mother enjoys the added rest. (It was surprising that most of the mothers awakened when their own babies cried at night but usually slept through the crying of their roommates' babies.)

On the fifth day, mother, father and baby leave the hospital well acquainted, thus facilitating the period of readjustment to new handling at home.

It is noteworthy that when the nurses communicate with the mothers two or three days after they have left the hospital, it is found that they have continued to apply at home the teaching they have learned. Many of the mothers have reported that their babies weaned themselves of the 2 a.m. feeding when eight days old. It is planned to continue to communicate with these mothers from time to time over a period of months in order to learn the length of time mothers continue to nurse their babies and to ascertain the general attitude toward the rooming-in plan.

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Transurethral Prostatectomies

A Review of 560 Cases

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SUMMARY

Of 560 prostatectomies in an 11-year period on patients with benign or malignant disease of the prostate gland, almost 98 per cent were done transurethrally.

Although many of the patients were considered to be in poor condition preoperatively, results achieved by the transurethral operation were excellent or good in 91 per cent of those who had benign disease of the prostate and in 84 per cent of those with malignant invasion. The rate of deaths attributable to the operation was 3.1 per cent in the group of patients with benign disease, 5.3 per cent in patients who had cancer.

Complications, such as urinary incontinence, persistent pyuria, epididymitis, strictures of the urethra and of the meatus, and contracture of the neck of the bladder, arose in a surprising number of cases.

THIS review of 560 prostatectomies that were done in 11 years of practice is presented because it reflects what can be accomplished in a small hospital in a small city without benefit of aid from interns or residents.

As the patients in such circumstances usually live in the same community as the surgeon who operates upon them and are more likely to be under constant observation by him, it is felt that in the main their progress may be more adequately followed than is that of patients treated at larger medical centers.

Nearly 98 per cent of the prostatectomies in this review were done transurethrally. Only 13 patients were operated upon by the suprapubic or the perineal route, and results with the latter two procedures are included not for statistical value but to emphasize that the authors recognize methods other than the transurethral and do not hesitate to use them when indicated.

SUBJECTS

Statistics gained from the study of records of 560 patients are presented. Records of 88 other patients were discarded because of the presence of prostatic bars, bladder neck contracture, minor prostatic problems, or incomplete records. Preoperative data on the 560 patients are shown in Table 1.

TREATMENT

Of the 502 patients with benign disease of the prostate, 490 (97.6 per cent) were subjected to transurethral, nine (1.8 per cent) to suprapubic, and three (0.6 per cent) to perineal prostatectomy. Of the 58 patients with malignant disease, 57 (98.2 per cent) received transurethral, and one (1.8 per cent) radical perineal prostatectomy. Associated urological procedures—vasectomy, meatotomy, litholapaxy, cystotomy and external urethrotomy—were carried out in 11.3 per cent of the cases in which the disease of the prostate was benign and in 12.9 per cent of those in which there was malignant change.

Of the 490 transurethral prostatectomies for benign disease, 88.6 per cent were done in one stage, 11.2 per cent in two stages, and 0.2 per cent in three stages; of the 57 transurethral operations upon patients with carcinoma, 80.7 per cent were carried out in one stage and 19.3 per cent in two stages.

After 1941, hormone therapy was combined with transurethral operation in 40 patients. In over two-thirds of these, estrogens were used, and in the rest orchidectomy and estrogens were combined. It is of interest that it was possible to treat 27 patients who had carcinoma, with obstructive symptoms in many cases, without resort to prostatectomy. Twenty-three received estrogens alone and four had both orchidectomy and estrogens. These patients are not included in the series of 560 reviewed in this presentation.

RESULTS

Although this communication is concerned primarily with transurethral prostatectomies, corresponding data for open surgical procedures are listed (Table 2) as an interesting comparison. There is no intent to imply that the comparison might have statistical value.

Postoperative catheter drainage time and total time of stay in hospital (averaging 5.3 and 10 days,

TABLE 1.—*Preoperative Data on 560 Patients with Prostatic Disease*

	Benign 502 Cases	Malignant 58 Cases
Average age	69.8 yr.	77.6 yr.
Pyuria	51%	68%
Residual urine over 100 cc.	80%	75%
Uremia*	20%	23%
Associated disease	48%	42%
Metastasis	....	10%
Previous prostatic operation	8.8%	15.6%
Risk—good or fair	89%	75%†

*Urea nitrogen in blood more than 20 mg. per 100 cc.

†From a radical point of view an additional 15.5 per cent were considered operable.

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TABLE 2.—*Results of Surgical Treatment of 560 Patients with Prostatic Disease.*

	Benign Disease			Malignant Disease	
	Transurethral 490 cases	Suprapubic 9 cases	Perineal 3 cases	Transurethral 57 cases	Radical 1 case
Catheter Out—P.O. Days	5.3	23.6	12.6	7.5	15
Hospital—P.O. Days	10	33	20	13.5	17
Weight of tissue removed (grams)	29	168	107	19.3	180
Persistent pyuria	20%	33%	0	35.0%	0
Tissue left	8.6%	0	0	......	0
Incontinence, temporary	10.2%	100%	100%	3.5%	0
Incontinence, permanent	2.2%	11.1%	0	1.8%	0
Extravasation	0	0	0	0	0
Hemorrhage, early	4.7%	22.2%	0	3.5%	0
Hemorrhage, late	4.5%	11.1%	0	7%	0
Lower nephron nephrosis	0.6%	0	0	0	0
Epididymitis	10.0%	0	33%	3.5%	0
Stricture of urethra	6.3%	0	0	1.8%	0
Stricture of meatus	5.9%	0	0	5.3%	0
Periurethral abscess	0.8%	0	......	1.8%	0
Bladder neck contracture	4.3%	0	......	1.8%	0
Fever of 102° F. or above	28.8%	33%	33%	17.5%	0
Mortality	3.1%	22%	0	5.3%	0
Results:					
Excellent	63.6%	42%	100%	46.4%	100%
Good	27.4%	28%	......	37.5%	......
Fair	6.6%	0	......	8.9%	......
Bad	2.4%	28%	......	7.1%	......

respectively) following transurethral resection of benign prostatic disease were greater than might be expected. In this connection, however, it should be noted that prolongation of stay for any reason was charged to the operation. The persistent pyuria which was noted in 20 per cent of patients was due in some cases to residual prostatic tissue, but in others the cause remained obscure and pyuria persisted despite strenuous therapy. The presence of residual tissue rarely necessitated secondary operation. Temporary incontinence was of minimal concern, but of more importance was permanent incontinence, which was present in 2.2 per cent of patients with benign prostatic disease who were operated upon transurethrally. Hemorrhage, early or late, occurred in a small percentage of cases and was rarely of severe nature. Difficulty was experienced in recognizing lower nephron nephrosis from the data in old records. The estimated incidence was 0.6 per cent. Epididymitis occurred with sufficient frequency (10 per cent) to cause adoption of routine partial vasectomy. Strictures of the urethra and meatus were troublesome and emphasized the necessity for gentleness in instrumentation. As a routine postoperative measure, a urethral sound was passed at least once in each patient. Periurethral abscess was a rare but troublesome complication. In most cases of bladder neck contracture, periodic dilatation was sufficient. Secondary transurethral resection produced disappointing results. The mortality rate (3.1 per cent) was considered high by the authors, although it compares favorably with current figures reported by others. Despite the poor condition of many of the patients, it was felt that the results achieved in 91 per cent of the cases could be classified as excellent or good.

Estimation of results in patients with cancer of the prostate gland is necessarily difficult because of the changing nature of the disease. In the series reported (Table 2), judgment was based on the condition of the patient either immediately postoperatively or when last observed. Of these patients, 84 per cent were classified as having excellent or good results. Clinical improvement was encouraged by the concurrent use of hormonal therapy. Six patients not operated upon progressed from complete retention to normal urination with in-dwelling catheter and hormonal treatment alone.

233 A Street.

Laryngospasm from the Anesthesiologist's Viewpoint

Earl T. Hull, Jr., M.D., *Los Angeles*

SUMMARY

Laryngeal spasm is a problem constantly confronting the anesthetist. It can be serious and may produce fatal cerebral or cardiac complications. Etiologic agents include primary vagal hypertonicity, anoxemia, and painful stimulation of whatever source.

Laryngeal spasm must be differentiated from simple obstruction by the tongue or foreign bodies, epiglottic impaction, laryngeal edema, tracheal spasm and collapse, and bronchial spasm.

Proper checking of the patient before anesthesia and adequate premedication with atropine or scopolamine are preventive measures of great value. Once spasm has developed the etiologic agent should be removed if possible. Other measures include intravenous administration of atropine or curare, tracheal intubation, and tracheotomy.

The problem of spasm of the larynx and its associated conditions is one constantly confronting the anesthesiologist. Maintenance of a clear airway is one of the primary functions of the anesthetist and the relationship between this function and laryngospasm is evident.

The larynx is primarily a valvular mechanism[8] leading into the trachea. It consists of cartilages held together by ligaments and small but powerful muscles. The total structure is extremely strong for its size, as the anesthetist who has tried to intubate a spastic larynx will testify; yet the mucous membrane is delicate and bleeds easily and profusely.

The nerve supply of the larynx is derived from the tenth cranial nerve. The superior laryngeal nerve approaching from above divides into an internal branch supply all the glands and mucous membrane, and an external branch which supplies the cricothyroid muscle. The remainder of the intrinsic musculature of the larynx is supplied by the inferior or recurrent laryngeal nerve.

In considering the etiology of laryngospasm it should be remembered that some persons (particularly children[1, 10, 11] or those with vagal hypertonicity) are prone to laryngospasm. Some children may spontaneously have spasm of such severe degree as to be thought dead.

Spasm due to anoxemia[9] is common when N_2O or ethylene with subatmospheric oxygen tension are the primary agents, being more common in the heavy muscular unpremedicated individual, less likely in the thin, heavily medicated patient. With deepening anoxemia, spasm of the laryngeal muscles increases in intensity and, since adductors are more powerful than abductors, the cords gradually become tightly approximated. This adduction continues until anoxic relaxation occurs and permits adequate artificial respiration.

The nervous mechanism producing laryngeal glottic closure arises reflexly from stimulation of afferent nerves, visceral or parietal elsewhere in the body (extrinsic reflexes) or from nerves in the organ itself (intrinsic reflexes).[3] Of the extrinsic reflexes those of the respiratory tract are of great importance. This class also includes reflexes involved in such functions as swallowing, defecation and parturition. Painful stimulation of any part of the organism may produce laryngeal reflex spasm. Spasm will occur under any condition as long as the reflex arc is intact. Fall in blood pressure and shock have no direct bearing on laryngospasm.

One of the most distressing and most common forms of laryngeal spasm occurs during abdominal operations. Under moderate anesthesia the vocal cords are patent with a relatively mild adduction during the early part of expiration, followed by a gradual return to a patent position. Under light anesthesia the aperture between the cords is narrowed with active abduction during inspiration. When traction is made upon any of the splanchnic viscera, there is cessation of respiration with approximation of the vocal cords. When an inspiratory phase occurs, abduction is relatively weak, indicating increased adductor tone which is maintained for some time after traction has ceased.

The increased incidence of laryngospasm in patients under barbiturate anesthesia was recognized early by Burstein,[4] who demonstrated, in animals, either spastic adducted vocal cords or at least hyperactive adductor tone. Atropine or bilateral cervical vagotomy invariably relieved the symptoms; the sympatheticomimetic drugs were partially successful. All clinical anesthesiologists are familiar with this state of hypertonic vocal cords, especially when associated with abdominal traction.

Other extrinsic reflexes are multitude (traction on eye muscles, vein stripping, etc.).[6] Intrinsic reflexes are likewise numerous (stimulation of epiglottis or epliglottic region with airway or laryngoscope, stimulation of the glottis by foreign bodies, blood, teeth, etc., or by irritant agents in, or concentrations of, the anesthetic gases).

Many clinical conditions arise during anesthesia which simulate laryngospasm; cessation of gaseous exchange without cessation of respiratory effort occurs, cyanosis and signs of asphyxia are present. Two common conditions in this class are backward displacement of the tongue and obstruction by foreign bodies (teeth, blood, mucus, etc.). Both of

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these conditions may actually produce laryngospasm unless speedily corrected.

Caiger[5] and others report epiglottic impaction as an entity simulating laryngeal spasm. As anesthesia deepens, relaxation of the muscles of the tongue allows the epiglottis to slip or drop posteriorly as well as to incline posteriorly. When to these motions is added the rush of air from the wide oropharynx into the narrower glottis it appears tenable that the unattached part of the epiglottis may be sucked through the glottis. Anatomical variations may predispose to this entity. Caiger cites one patient in whom this condition arose twice as bearing out this point. There are no other symptoms besides respiratory cessation.

Therapy consists of opening the mouth with a gag, pulling the tongue forward and then breaking up the impaction by sliding the forefinger under the epiglottis from the side. Because the condition is not looked for, as well as because the routine used for relief of respiratory obstruction (pulling the tongue forward) frequently relieves the condition, it is often missed and may be responsible for some unexplained operating-room deaths.

Laryngeal edema of severe degree and rapid onset may produce respiratory obstruction simulating spasm. Skaggs[15] reports such an occurrence in a patient with a cervical abscess of dental origin; exposure of the cords showed complete obstruction by edema; the epiglottis could be identified only as a gelatinous mass.

Two clinical catastrophes of unusual interest to both anesthetist and surgeon are tracheal spasm and tracheal collapse. Both must be differentiated from laryngospasm.

Tracheal spasm has been very thoroughly studied by Cole.[6] In one case reported by him, during delivery of the right thyroid lobe using moderate traction, marked stridor developed although examination of the recurrent nerve revealed it to be free. Stridor continued although all operative procedure and traction were discontinued for a full minute. Tracheotomy was prepared for, the trachea when exposed being pale and bloodless, and about the size of a lead pencil. This constriction continued until the patient became extremely cyanotic. By the time the tracheotomy tube was ready the patient had begun to recover and when the trachea was again observed it was as large as the index finger and unusually pink. Either the trachea underwent actual spasm or else the negative pressure incidental to laryngeal obstruction caused a partial collapse of the tracheal walls. Laryngoscopic examination of this patient revealed normal action of the cords.

Cole demonstrated a definite anatomical basis for tracheal spasm. The posterior fourth of the trachea is made up of the trachealis muscle, the anterior three-fourths being cartilaginous rings and the fibroelastic membrane connecting them. The degree of contraction varies with the strength of the cartilaginous rings; if they should be weakened by constitutional diseases or, more likely, by pressure from a thyroid nodule over a long period, spasm or collapse of the trachea occurs more readily. Cole's experiments with dogs proved conclusively that contraction of the trachealis muscle caused marked constriction. (Although no experimental evidence regarding humans is available, it is noteworthy that the human muscle is relatively more developed. The recurrent laryngeal nerve innervates this muscle.) During Cole's work it was noted that stimuli producing laryngeal spasm also had a pronounced tendency to produce tracheal spasm as well. The larynx is more susceptible and more important since complete collapse of the trachea is not possible in normal persons.

Thus it appears certain that tracheal spasm may be the first step in tracheal collapse. The latter condition is of course truly rare; it was reported to have occurred only three times in a series of over 600 thyroidectomies (Henry[7]).

The prognosis of tracheal collapse varies somewhat with the type of gas being breathed at the time, according to Rovenstine[13] and Peterson. If the gases are mainly oxygen, they will be absorbed much more rapidly than air with its high concentration of inert nitrogen, thus making pulmonary collapse more complete and increasing the difficulty of inflating the lungs.

The next anatomical level at which obstruction resembling laryngospasm may occur, is that of the bronchioles.[2, 14] Many agents commonly in use may produce bronchiolar constriction—morphine, paraldehyde, barbiturates and cyclopropane for example —although curare is perhaps the most common etiological agent in the present drug catalog. Tracheal intubation relieves laryngospasm at once but has little or no effect on bronchiolar constriction.

As in most medical problems, so in laryngospasm, prevention is the easiest solution. This includes many simple routine procedures; for example, checking the mouth of the patient for dentures or other objects, and determining that the stomach is empty.

Adequate premedication with either atropine or scopolamine is of prime importance. These drugs exert a twofold effect; first, drying oral secretions which in themselves might produce spasm, and, second, inhibiting vagal activity from whatever source.

Since many reflexes producing spasm arise in the pharynx, spraying of pharyngeal areas with local anesthetic agents is a preventive measure and is especially indicated if a pharyngeal or endotracheal airway is to be inserted. Without local anesthesia plane II, stage III anesthesia is necessary before an airway can be safely inserted. Proper depth of anesthesia[12] is likewise important if spasm from whatever source is to be avoided. Gentle deliberate movements (no roughness or jerking) by the surgeon will also greatly aid the anesthetist and permit lighter plane anesthesia.

Inhalation of carbon dioxide in 10 per cent concentration for a few breaths may break up developing laryngeal stridor and allow the anesthetist a few moments to correct the cause.

Once laryngeal spasm has developed, other procedures are necessary. Fundamental is cessation of stimulation if possible. However, this is often not done. The surgeon continues his work and relies upon the anesthetist to overcome the spasm, an extremely unwise practice.

Intravenous atropine may be useful in relieving laryngospasm. Burstein[4] observed in experiments with cats that 3 to 5 mgm. per kilogram of body weight produced immediate relaxation of the cords with return to normal respiration. How effective atropine is in humans is still a point upon which there is disagreement.

Curare is widely used to prevent or treat laryngeal spasm. Usually small doses (40 units of Intocostrin®) will suffice. If laryngospasm develops under light anesthesia the injection of curare may relieve the laryngeal spasm but give rise to bronchiolar spasm. To avoid this, curare should be used in relatively large doses and the plane of anesthesia deepened until the laryngeal spasm has cleared and the cause of it has been removed.

Physical methods of relieving laryngospasm include laryngeal intubation and tracheotomy. With the cords in spasm and the glottis likewise closed, the physical problem of identifying of the area and passing the tube may be extremely difficult. A stiff woven catheter of small caliber, well lubricated, is perhaps best for this purpose. Tracheotomy is performed less frequently today but should never be forgotten. Never should more than four minutes of complete obstruction be permitted to pass before tracheotomy is begun.

DISCUSSION

No attempt has been made to add to this subject; the purpose of this communication is merely to give some orderly presentation to facts which are scattered piecemeal through the textbooks and literature. The problem, however, is a real one which may confront anesthetists at any time. Wangeman and Martin[16] reported 249 "moderate" and 27 "severe" laryngeal spasms in a total of 5,298 cases. Some observers regard spasm as merely a nuisance. It is very disconcerting to find in a modern textbook such a statement as this :"The presence of laryngeal spasm indicates the presence of muscle tone and is in itself reassuring although the patient's condition may appear grave. If the cardiac musculature is reasonably healthy, the heart will continue to beat for some time."[9] Despite this optimistic view of some observers, deaths from cerebral or coronary accidents or ventricular fibrillation do occur during laryngospasm. The condition is a serious one and should never be treated lightly.

305 South Westlake Avenue.

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Discussion by William H. Moran, M.D., *Los Angeles*

The subject of laryngospasm is very timely, as it deals with one of the most acute and most dangerous complications of anesthesia.

Laryngospasm seems more likely to occur during light anesthesia when the reflexes are not obtunded. For this reason laryngospasm must especially be guarded against during barbiturate anesthesia.

Not only can extrinsic reflexes produce laryngospasm, but intrinsic reflexes as well, the latter being more likely to occur during induction. Inspissated mucus, such as accumulates overnight in many patients with chronic bronchitis and chronic sinusitis, may frequently induce an intrinsic reflex leading to laryngospasm. The prevalence of morning operations and the almost universal custom of preoperative sedation prevent the normal coughing up of this foreign matter. Prior to operation an attempt should be made to make the patient raise any mucus that may be present.

Laryngospasm occasionally occurs during anesthesia with curare, and it has been suggested that it is due to insufficient curare, or that additional doses of curare should be given. It is quite possible, however, that when curare is being used, the plane of anesthesia may be too shallow. When using curare the depth of anesthesia must be considered carefully, especially in operations where extrinsic reflexes may be expected.

When speaking of the differentiation diagnosis of laryngospasm, Dr. Hull referred to bronchiolar constriction. This condition can usually be distinguished from laryngospasm by the ease with which the lung can be expanded.

Endometriosis

A Clinical and Pathological Study of 219 Cases

Dominic A. DeSanto, M.D., and John E. McBirnie, M.D., *San Diego*

SUMMARY

One hundred twenty-four cases of external endometriosis and 95 cases of adenomyosis were analyzed. The two are clinically different diseases which have one feature in common—a reactive fibrosis to aberrant endometrial tissue. They are coexistent in about the same frequency as would result from a noncausal relationship.

The origin of external endometriosis from the epithelial "inclusion" cyst is considered proven histologically. This is the source of origin of most external endometriosis, although occasional involvement from regurgitated endometrium probably occurs. Both the endometrial and the serous cysts have a common parentage in this anlage.

Certain histological features that are considered pathognomonic of endometriosis are: (1) the minimal lesion, (2) the characteristic cuboidal lined cyst, (3) the siderophagic cyst without lining, and (4) the siderophagic nest.

Recognition of the siderophagic nest will permit identification of extinct endometriosis and thus aid in studies to determine the spontaneous or therapeutically induced regression of the disease.

The coexistence of endometriosis with other pelvic pathological changes, notably carcinoma, indicates the need for further studies to search the possibility of relationship.

The ability of ectopic deposits of endometrium to become malignant on rare occasions would appear to be proven, but it is a rare occurrence and there is no justification for regarding endometriosis as a premalignant disease.

ENDOMETRIOSIS is a disease in which there are ectopic deposits of endometrial tissue in various parts of the body giving rise to obscure but fairly characteristic symptoms. Descriptions of this disease date back to closing years of the 19th century but Sampson[7, 8, 9, 10] first recognized its fundamental nature, and his descriptions of its manifestations cannot be improved upon today. Whereas formerly knowledge of the disease was limited, today knowledge of its existence is fairly widespread and the clinical diagnosis is made with increasing frequency. On many occasions, however, the disease is recognized only after examination of pathological material. It is, on the other hand, all too often true that whereas the disease is recognized by the surgeon its diagnosis escapes the pathologist, a situation which is the reverse of that which usually obtains. The purpose of this presentation is to emphasize some of the more obscure but equally pathognomonic histological features of the disease and thereby facilitate the pathological diagnosis.

INCIDENCE

There is considerable evidence accumulating that endometriosis is a disease of increasing incidence. It is one of the most common gynecological diseases. Fallon[1] stated that it was more common in females than acute appendicitis. Various observers have stated that it affects from 15 to 30 per cent of women. The authors' figures are in harmony with these.

This increase in incidence has been attributed to a more frequent diagnosis on the one hand and to an actual increase; Meigs[4, 5] has championed the latter view. In the authors' experience the increased incidence seems to be an absolute one. Although supporting statistics cannot be cited, the authors are convinced that they are encountering the disease more frequently than was the case 15 years ago. Meigs[5] has stated that the reason for this increase lies somehow in the changed social and economic conditions of our modern society which delay marriage until the third and even fourth decades and thereby inhibit fecundity.

Records of Mercy Hospital show a yearly increase in the number of recognized cases, from two in the year 1930 to 65 verified cases in the year 1947. Of 4,751 uteri removed and examined at the Mayo Clinic from the years 1923 to 1934, uterine endometriosis was found in 482 cases, or 10.1 per cent.[3] Another way to estimate incidence is to study the frequency with which the disease is encountered in an extended series of pathological examinations (Table 1). In the material studied, endometriosis was the most common disease entity affecting the ovary. These studies probably do not indicate the exact incidence of the disease in the female population since it is representative of a selected series of patients with gynecological complaints. However, it is a surprising figure considering that it is based upon a consecutive series of cases in which the ovary was subjected to routine pathological examination. The figures do not take into account the incidence of endometrial deposits in the uterine wall. Adenomyomas or adenomyosis were found in approxi-

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TABLE 1.—*Analysis of Pathologic Change of the Ovary, August 1946 to April 1949, Mercy Hospital, San Diego, California*

	CASES
1. Endometriosis (cysts and focal)	108
2. Involution changes, miscellaneous	144
3. Follicle cysts	88
4. Corpus lutein cysts	84
5. Salpingo-oophoritis	63
6. Serous cysts	53
7. Dermoid cysts	28
8. Pseudomucinous cysts	20
9. Fibroma	16
10. Papillary serous cystadenocarcinoma	15
11. Papillary serous cystadenoma	10
12. Theca-cell tumor	4
13. Krukenberg's tumor	4
14. Pseudomucinous cystadenocarcinoma	2
15. Brenner tumor	2
16. Granulosa-cell tumor	1
TOTAL	642
Percentage endometriosis	16.8%

TABLE 2.—*Pathological Findings in a Consecutive Series of 762 Uteri Examined in the Period August 1946 to April 1949*

		CASES
Fibromyomata		454
Fibrosis uteri, prolapse, normal or incidental to other pelvic pathology		144
Adenomyomas, adenomyosis	112	
Peritoneal endometriosis	7	119
Carcinoma of endometrium		27
Carcinoma of cervix uteri		16
Sarcoma of uterus		2
TOTAL		762
Percentage adenomyosis		15.6%

TABLE 3.—*Analysis of 219 Cases of Combined External and Internal (Adenomyosis) Endometriosis*

External endometriosis (alone)		113
External-internal endometriosis (coexistent)	11	124
Internal (adenomyoma)		95
TOTAL CASES		219

mately 15 per cent of uteri examined, and adenomyosis was about one-fourth as common as fibromyomas, as is shown in Table 2.

ENDOMETRIOSIS VERSUS ADENOMYOSIS

Endometriosis is sometimes described as existing in two forms, (1) external and (2) internal. The latter is synonymous with adenomyosis. In this condition, a direct continuity is said to exist between endometrium lining the uterus and aberrant endometrium in the uterine wall. As both are diseases of unknown cause, it is impossible to settle the question as to whether these are the same or two different diseases. In some cases external and internal endometriosis are coexistent, and the anatomical appearances indicate that, in these cases at least, the two are merely different manifestations of the same disease. The incidence of this coexistence is shown in Table 3.

The coexistence of external and internal endometriosis might thus be explained as purely fortuitous, and it certainly does not point to a common etiologic factor. On the other hand, it does not disprove a common causative factor, a point which will be discussed later.

PATHOLOGICAL ANATOMY OF ENDOMETRIOSIS

Wherever endometrium exists as a foreign tissue, it excites certain pathological tissue responses. These may be summarized as hemorrhage and reactive fibrosis. The sequelae of hemorrhage are, in turn, abnormal hemosiderin deposits, often with small focal calcifications. In the uterine wall, invading endometrium results in localized or diffuse fibrous thickenings with a characteristic trabeculation which is readily recognized. Not infrequently small bluish or chocolate-colored cysts, a few millimeters in diameter, are seen in the midst of the thickened areas of myometrium. In about 49.4 per cent of cases, fibromyomas and adenomyoses are associated in the same uterus. A frequent site of small solitary adenomyomas is in the region of the uterine cornu.

In the ovary, endometriosis exists in two forms, (1) as the endometrial cyst and (2) as the endometrial implant. The endometrial or chocolate cysts vary in size from 1 cm. to 20 cm. in diameter. They are bilateral in the vast majority of cases and almost invariably are ruptured during removal. The content varies from a fresh hemorrhagic liquid to a thick, chocolate-colored, tarry fluid. Although most such cysts are unilocular, some are multilocular. After the fluid is evacuated, the lining is often found to be roughened and dull, but it is sometimes smooth and chocolate-stained. The stain will not remove with washing. The focal endometrial implant is often a small blueberry spot, a few millimeters in diameter, indistinguishable from small hemorrhagic follicles unless associated with other unmistakable lesions. The implant undoubtedly represents an early stage of the cyst.

The pathological stigmata of the disease are well recognized by the astute surgeon. They should be searched for, whenever possible, in every laparotomy on female patients. Small or large, puckered adhesions in the cul-de-sac and the uterosacral ligaments accompanied by "blueberry spots" around the lower pelvic peritoneum are diagnostic of the disease. In the later stages, dense adherent peritoneal bands will be found over the posterior uterine surface, often uniting it to the sigmoid colon. In some cases this union may be indissoluble except by surgical resection of a portion of the sigmoid colon. Endometriosis thus causes a type of chronic chemical peritonitis.

Unfortunately when the pathological specimen reaches the pathologist, frequently distorted by fixation, the peritoneal manifestations are no longer recognizable. The authors have made it a routine practice to examine all roughened adhesions or hemorrhagic areas, particularly from the posterior uterine peritoneum and routinely from the cul-de-sac. As a result an increasing number of endometrial implants (Figure 3) are being discovered. Peritoneal

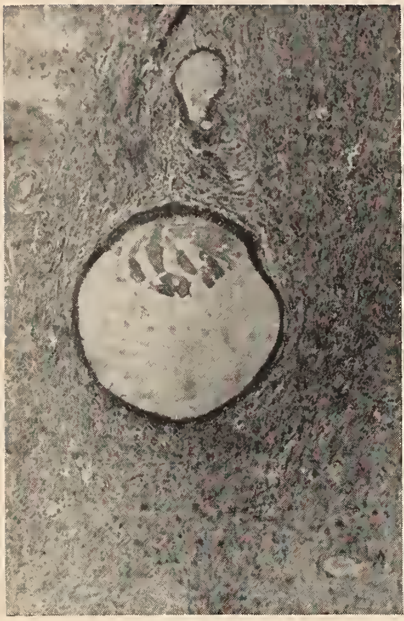

Figure 1

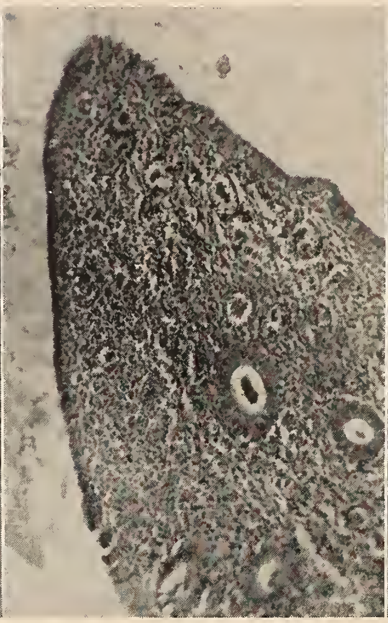

Figure 2

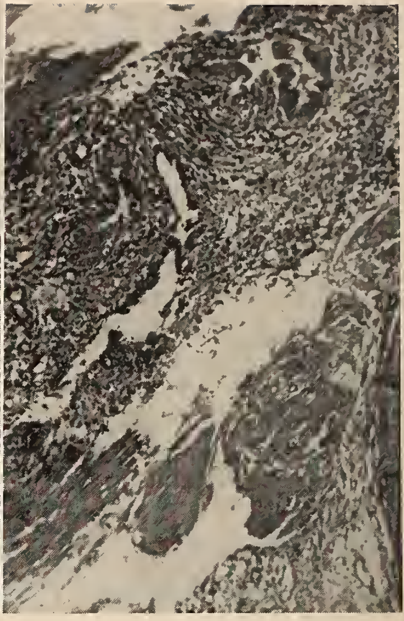

Figure 3

Figure 1.—Low-power photomicrograph of ovary, showing small endometrial implants. Endometrial stroma is beginning to appear about the smaller implant. This lesion is termed "minimal lesion" by the authors.

Figure 2.—A classical endometrial implant in an ovary (low power). Lesions of this type are readily recognized.

Figure 3.—An endometrial implant discovered in a routine section of the peritoneum of the uterine cul-de-sac (low power).

endometriosis is a creeping, migratory disease and spreads over the surface of the fallopian tubes, appendix, loops of small intestine and often up to the umbilicus. The anatomical sites in which the authors have discovered the disease are shown in Table 4.

However, the figures in Table 4 do not indicate the actual extent of peritoneal involvement of pelvic structures since they are based on pathological examinations and not upon surgical findings. Obviously, tissue from the pelvic peritoneum will not be available for examination in many instances in which endometriosis is involved. The rectosigmoid involvement is particularly understressed and probably occurs in some degree in about 25 per cent of cases.

PATHOGENESIS OF ENDOMETRIOSIS

Despite years of pathological and experimental investigation, the knowledge of the pathogenesis of endometriosis is considered to be theoretical. It would seem that insofar as it is possible to prove anything by means of morphological examination, the material already exists for determining the pathogenesis of endometriosis. The present theories of histogenesis may be summarized as (1) Sampson's theory of retrograde menstruation and implantation, and (2) the theory of celomic metaplasia. Adenomyosis is certainly a manifestation of endometrial implantation by direct extension. The authors are not in a position to deny that this mechanism may explain occasional cases of peritoneal endometriosis. In one case, bilateral hematosalpinx with endometrial-like tissue lining the fallopian tube was observed. A fistulous tract extending from the uterus to the lower abdominal wall was observed in another case as a complication of cesarean hysterotomy. Hosai[2] has reported other examples of this complication. Morphological criteria indicate in a manner as convincing as possible that in the majority of instances endometriosis is the result of metaplasia of celomic mesothelium. It is the authors' belief that endometriosis and serous ovarian cysts have a common origin through a mechanism of celomic metaplasia and are both derived from the so-called epithelial "inclusion" cyst.

The mesothelium covering the adult ovary frequently appears as an epithelial-like border of low cuboidal cells and is identical with the lining of small glandular inclusions frequently encountered in routine histological examination of the ovary.

TABLE 4.—*Anatomical Distribution of Lesions of Endometriosis in a Series of Combined "External" and "Internal" Endometriosis*

SITES	CASES
Ovaries	107
Uterus	106
Cul-de-sac and posterior fornix	21
Fallopian tube	19
Cervix	8
Appendix	5
Sigmoid colon	4
Ileum	1
Omentum	1
Bladder	1
Hernia sac	1
Pelvic lymph node	1
TOTAL	275

Novak[6] has termed these inclusions as "inclusion cysts." They may arise in a downgrowth of surface mesothelium or may be derived from ovarian mesenchyme. In any event, the authors are convinced that this is the precursor of the endometrial cyst; these typical "inclusion" cysts were found in most of the material associated with the unmistakable lesions of endometriosis, and the coexistence was too frequent to be casual or accidental. In cases of endometriosis of the ovary, these cysts frequently are found containing bluish staining mucoid content although the lining cells do not contain mucus. All "inclusion" cysts do not become endometrial cysts, but it is the authors' belief that in all or most cases ovarian endometriosis is preceded by the so-called inclusion cyst.

The determination of the direction in which the "inclusion" cyst will develop is dependent upon certain factors or influences, probably of a hormonal nature, which are unfortunately incompletely understood. This development may remain arrested and never progress beyond the "inclusion" stage. On the other hand, given the proper stimulus, it may develop either into the endometrial cyst or into the serous cyst, papillary serous cystadenoma or its malignant counterpart, the papillary serous cystadenocarcinoma.

This explanation, which is believed to be as susceptible to proof as is anything based upon morphological criteria, recognizes the multipotentiality of ovarian tissue. The ovarian stroma assumes the character of endometrial stroma and the lining cuboidal cells of the "inclusion" cyst develop the ability of endometrium to secrete and to bleed, and the transformation is complete. In virtually every case in which there is unmistakable endometriosis in the ovary, a careful search with multiple sections will reveal the modified "inclusion" cyst, usually containing a small amount of mucoid content (Figure 1).

In summary, the epithelial "inclusion" cyst is the earliest undifferentiated stage of ovarian endometriosis and, when it contains a small amount of mucoid secretion, represents the earliest recognizable lesion of endometriosis. For this entity the term "minimal lesion" is suggested.

THE PROGRESSION OF ENDOMETRIOSIS

In most cases, the ovary is the primary site of external endometriosis. It is the storehouse whence the disease may spread to involve contiguous structures. The tempo of endometriosis is undoubtedly an individual matter and is dependent upon hormonal or other relationships at present incompletely understood. There has been, in the authors' experience and in that reported by others, a small percentage of cases in which adjacent pelvic structures, notably the fallopian tubes, were affected without demonstrable ovarian involvement. Either the ovaries are not affected or the involvement is so slight as to be unrecognizable. No doubt the para-ovarian mesothelium shares with the ovary this property of celomic metaplasis, but in lesser degree.

MICROSCOPIC RECOGNITION OF ENDOMETRIOSIS

It may seem superfluous to devote any consideration to a subject presumably so thoroughly known as the microscopic recognition of endometriosis. It may be helpful, however, to discuss certain histological criteria which the authors believe to be as unmistakably pathognomonic of endometriosis as is the discovery of classical endometrial-like implants in aberrant locations. These criteria permit the identification of waning and extinct endometriosis and assist in studies on the progress and outcome of the disease.

Classical endometrial implants merit little discussion. They are found at or near the surface of the ovary or in the substance and present the characteristic appearance of endometrial tissue, with glands and stroma. Fresh hemorrhages are sometimes seen within the glands or within the stroma or both, and older hemorrhages are even more frequent. They are found in a variety of locations such as the surface of the fallopian tube, the peritoneum of the uterus, and the omentum (Figures 2 and 3). Although bleeding aberrant endometrium is a frequent finding, the cyclic secretory or premenstrual phases were seldom observed in the material studied by the authors, which gives rise to the belief that in many if not most cases the aberrant endometrium bleeds, but less often (if not rarely) menstruates.

The Typical Chocolate Cyst: All chocolate cysts are not endometrial but the vast majority are. Timidity in making the diagnosis may delay treatment for a disease whose progress is capable of therapeutic arrest. The "typical" chocolate cyst has a columnar or cuboidal border, beneath which there is a characteristic, sometimes modified, endometrial stroma (Figure 4). The border may occasionally appear pseudociliated. The stroma at times may be replaced by masses of siderophagic cells or cells containing lipochrome pigment (Figure 5). These are phagocytic cells probably derived from stromal mesenchyme. They appear large, oval, rounded or polygonal in shape. The pigment is sometimes coarsely granular and at other times foamy in character with a pale yellow-brown color. Such cysts are easy to recognize but are sometimes not diagnosed as endometrial if the stroma is modified or atypical. Sampson illustrated the lesions in beautiful colored drawings in some of his monographs.

The Non-Epithelialized Siderophagic Cyst: In many cases, the columnar epithelial lining is either absent or not discovered by routine examination. The situation is parallel to that which exists when the common pilonidal cyst is examined and no epithelium can be discovered. In either case, the destructive process, hemorrhage and infection respectively, have destroyed all evidences of an epithelial lining. Small and large cysts lined by several rows of siderophages are as truly endometrial in origin as are the characteristic implants and cysts (Figure 5).

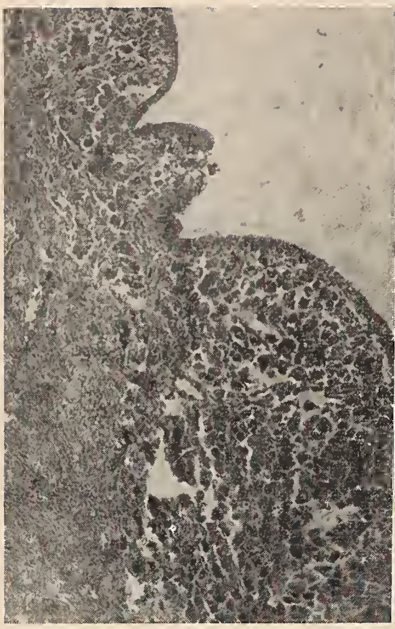

Figure 4

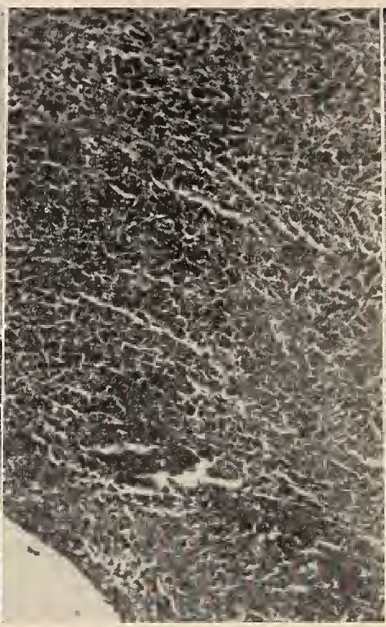

Figure 5

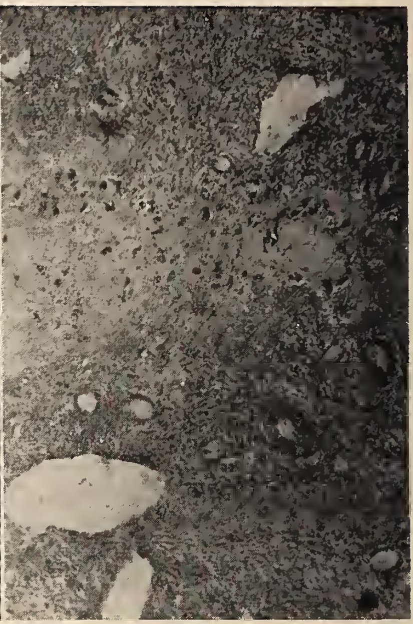

Figure 6

Figure 4.—Lining of a classical ovarian endometrial cyst (low power). The lining is formed of cuboidal or low columnar cells frequently with loosely arranged recognizable endometrial stroma cells. Note the collection of siderophages.

Figure 5.—Lining of an endometrial cyst formed of dense sheets of siderophages (low power). All trace of classical glands and stroma has been destroyed. Such cysts are frequently not diagnosed by the pathologist.

Figure 6.—The siderophagic nest (low power). This lesion is considered pathognomonic of extinct endometriosis.

The Siderophagic Nest: The authors use the term "siderophagic nest" to describe an ovarian lesion which as a stigma of endometriosis is considered as specific as the presence of the classical implant. (It was only hesitantly and after a review of the ovarian material studied that the conviction as to its pathognomonicity was reached.) The "siderophagic nest" is a small or large collection of siderophages found in the center of a fibrotic follicle. The authors believe it is an atretic follicle but cannot deny it may represent a luteinized follicle. It is seen regularly in ovaries that elsewhere show unmistakable implants or cysts. If such a lesion is present in an ovary in which there is no characteristic implant, extinct endometriosis is indicated, which is important in studying the stages of the disease.

Skeptics may question this report of the lesion, perhaps attributing it to over-enthusiasm. Therefore it should be noted that hemorrhage of the corpus luteum rarely leaves blood pigment; the hemorrhage is single and unrepeated and the site is spontaneously and completely repaired. Endometrial hemorrhages, on the other hand, are repeated and result in a reactive fibrosis whereby the hemorrhagic fluid becomes entrapped (Figure 6). It persists for long periods, probably years. The "siderophagic nest" thus formed may occasionally calcify and, rarely, produce bone in the ovary. An ossified fibrous ovary may result from endometriosis, as was indicated by findings in one of the cases studied.

Clinical Features: Clinical descriptions of the disease leave little that can be added. In the series studied by the authors, the average age of patients with external endometriosis was 37.3 years. The youngest patient was 21 years of age and the oldest 55. The duration of symptoms varied from one month to eight years, with the average 1.6 years. The commonest symptoms were progressive secondary dysmenorrhea, pelvic pain, menorrhagia, dyspareunia and infertility. Infertility was a common symptom. Of 61 married patients, 21 had never been pregnant, 15 had been pregnant once, 17 twice, seven three times, and one eight times. The average number of pregnancies for the series in married females was 1.7.

Clinically, adenomyosis is a different disease (Table 5). The symptoms affect an older age group. The commonest symptom is irregular menopausal or post-menopausal bleeding. Examination of curetted material is frequently negative or shows a fixed proliferative endometrium.

ENDOMETRIOSIS IN SPECIAL LOCATIONS

1. *Endometriosis of the Para-umbilical Region:* Endometriosis of the anterior abdominal wall in or about the umbilicus is always a manifestation of external endometriosis. Novak[6] cites about 60 recorded

TABLE 5.—*Contrasting Clinical Features of External Endometriosis and Adenomyosis*

	External Endometriosis	Adenomyosis
Average age	37.3 years	47.8 years
Duration of symptoms	21.9 months	12.6 months
Average number of pregnancies	1.7	3
Predominant symptoms	(1) Pelvic pain (2) Dysmenorrhea (3) Menorrhagia	(1) Irregular bleeding

cases. The present series contained four examples or about 3.5 per cent. In the four cases, two of the patients had had previous hysterotomy and cesarean section, one had not, and in one case the history was vague. In three cases, the endometrioma became swollen with the menses and in one case it did not. Umbilical endometriosis is cited as proof both of the implantation theory and of the theory of celomic metaplasia.

2. *Endometriosis of the Sigmoid Colon:* Involvement of the peritoneum of the sigmoid colon is present in many late cases. It indicates advanced disease. The involvement is commonly extrinsic. Operative description suggests an involvement in about 25 per cent of cases. Intrinsic endometriosis producing an infiltrating neoplastic-like lesion is rarer and probably exists in not more than 2 per cent of cases. In the authors' series, diagnosis of carcinoma was made in one case in which there was bleeding from the rectum. Similar errors had been made frequently before.

3. *Endometriosis of the Small Intestine:* One case of endometriosis in the terminal ileum occurred in the authors' series. The symptoms were those of "chronic" appendicitis. A small infiltrating tumor about 3 x 1 cm. involved the wall of the terminal ileum. "Chocolate cysts" were also present in the ovary.

4. *Endometriosis of the Appendix:* In the present series the peritoneum of the appendix was involved in only five cases (2.3 per cent), but it is probable that this is less than the usual incidence. The serosa presented a dull surface covered by fibrin-like deposits. Symptoms simulated those of appendicitis. This involvement is always secondary to right-sided ovarian endometriosis.

5. *Endometriosis of the Bladder:* Invasion of the bladder wall with tumor-like endometrial tissue is a rare occurrence. It occurred in one case in the present series, in a patient 27 years of age. In this case symptoms of bleeding and dysuria of six years' duration were so severe as to necessitate partial cystectomy. Extensive invasion was found. Diagnosis was made by biopsy of a suspicious lesion. The preoperative diagnosis was made on the basis of history characteristic of endometriosis plus the fact that blood cells were found in a urine specimen taken by catheter at the time of menstruation. Associated limited ovarian involvement also was found.

6. *Endometriosis in Pelvic Lymph Nodes:* Endometrium has rarely been reported in pelvic retroperitoneal lymph nodes. The authors encountered it once in examination of material removed in a radical panhysterectomy with lymphadenectomy for carcinoma of the cervix.

7. *Endometriosis of the Cervix:* Endometriosis was encountered in the cervix in eight cases. In three of these it was found in routine biopsy of the cervix for other disease. In the remainder it was probably a manifestation of adenomyosis.

8. *Endometriosis and Carcinoma:* In 124 cases of external endometriosis, three malignant tumors were found—two adenocarcinomas of the endometrium and one papillary adenocarcinoma of the ovary. An unusual adenocarcinoma of the urinary bladder and pelvis in a 55-year-old patient who had had a previous hysterectomy bore some resemblance to a carcinoma of endometrial origin. These figures are not conclusive of any causal association, but warrant further study. The authors encountered one endometrial adenoacanthoma in a female 52 years of age. It arose in the right ovary and was associated with chocolate cysts. The uterus was small and free of cancer. Snyder[11] reported another case. The ability of ectopic endometrium to become malignant on occasion would appear to be proven. It is a rare occurrence, however, and under no circumstances is there warranty for regarding endometriosis as a "precancerous" disease.

Table 6.—*Associated Significant Pathological Entities in 124 Cases of External Endometriosis*

	CASES
Endometriosis and adenomyosis	11
Endometriosis and salpingitis	12
Endometriosis and fibromyomata uteri	38
Endometriosis and endometrial cancer	2
Endometriosis and ovarian cancer	1
Endometriosis and other ovarian cysts or tumors	9
Endometriosis without significant associated diseases	51
Total	124

9. *Endometriosis and Other Pelvic Disease:* Other pathological conditions found in the 124 cases of external endometriosis are shown in Table 6. The significance of the association cannot be determined at this time. If, however, infertility is a cause as well as a result of endometriosis, it seems logical that the incidence of other pelvic diseases should be higher among women who have endometriosis than among those who do not.

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The Value of Blood Oxygen Determinations

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SUMMARY

The blood oxygen determination is of great value in the diagnosis of congenital cardiovascular anomalies, evaluation of the relative influence between pulmonary and cardiac diseases, study of blood pigments, and in many physiological investigations. The recent popularization of the intravascular catheter and the advent of accurate and simplified methods for determining blood oxygen content have enhanced the clinical usage of the determinations. The correct interpretation of the data with regard to the clinical status of the patient is most essential. While the blood oxygen value is merely a laboratory determination, proper employment of the findings may afford crucial information for the clinician.

PHYSICIANS frequently ask, "What is the real value of determination of the oxygen content of the blood?" A recent study has shown that very few physicians are able to diagnose early cyanosis in many cases, especially if the oxygen saturation of the arterial blood does not fall below 85 per cent.[3] The majority of these observers failed to detect cyanosis until the oxygen saturation fell to 80 per cent. Approximately one-quarter of this group did not note cyanosis until 70–75 per cent saturation was reached. As there may be wide variations in one physician's appraisal of a number of patients, disagreements among five or ten physicians all observing one patient at the same time, and inconstant factors in the patients themselves, visual impressions of cyanosis are unreliable.

DEFINITIONS

Oxygen capacity:

Whole blood normally contains about 15 gm. of hemoglobin for each 100 cc. Since 1 gm. of hemoglobin combines with 1.34 cc. of oxygen, when fully saturated, whole blood theoretically can contain 20 cc. of oxygen (1.34 x 15) for each 100 cc. This is known as the oxygen capacity of the blood, and can be calculated from the usual hemoglobin determination or by direct analysis.

Oxygen content:

Blood leaving the lungs normally contains about 19 cc. of O_2 per 100 cc. The amount of oxygen actually carried by the blood at any time is known as the oxygen content.

Oxygen saturation:

Since the oxygen usually carried by a given volume of blood is never quite up to its full capacity, the relationship between content and capacity is useful and is expressed as oxygen saturation. Blood normally, therefore, is only 19/20ths or 95 per cent saturated. Venous blood usually contains about 14 cc. of O_2 per 100 cc. (14/20ths), and is 70 per cent saturated.

Arteriovenous oxygen difference:

The arteriovenous oxygen difference is the amount of oxygen change in the circulation between the points where the samples are collected. It is calculated as follows:

Right femoral arterial O_2 content: 19 cc.
Right femoral venous O_2 content: 14 cc.

A-V O_2 difference: 5 cc. per 100 cc., or
5 volumes per cent

Therefore, in the example given, the right lower extremity removed 5 volumes of oxygen for each 100 cc. of blood flowing to the extremity.

Cyanosis:

Cyanosis is defined as a leaden bluish color of the skin. Visible cyanosis is due to the presence of more than 5 gm. of reduced hemoglobin per 100 cc. of capillary blood.[8] The degree of cyanosis depends on the absolute amount of reduced hemoglobin and not the relative amount. Polycythemic persons may be cyanotic with a high arterial oxygen content because of the presence of more than 5 gm. per cent of reduced hemoglobin. On the other hand, a patient with pronounced anemia may be unable to become cyanotic despite abnormally low oxygen content because of the lack of total hemoglobin. Other factors which may contribute to the appearance of cyanosis are:

1. Thickness, color, and opacity of the skin or membrane overlying the capillaries.

2. The number and length of blood-filled capillaries in a given surface area and the state of dilatation or constriction of the arterioles, capillaries or venules under observation.

3. Variations in plasma color, such as may be caused by dyes (toluidine blue, T-1824), or drugs.

4. Variations in the type, color and amount of

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hemoglobin (presence of methemoglobin, sulfhemoglobin or carboxyhemoglobin).

METHODS

The extent of arterial anoxemia can be determined only by a direct analysis of arterial blood. There are four methods in common use at this time for determining oxygen in the blood. These are: (1) Gasometric;[12] (2) micrometric;[6, 11] (3) spectrophotometric;[4] (4) photoelectric.[5, 10]

While the gasometric method is the standard by which most techniques are calibrated, the other procedures are less time-consuming. Variations in oxygen content of different samples from the same site are not unusual because of inadequate mixing of the blood, especially in the cardiac chambers. Specimens are often determined in triplicate. Differences in excess of 1.5 volumes per cent of oxygen are considered significant. All samples should be collected under oil and guarded from the air. Inadvertent aeration of samples is frequently the explanation for questionably high values.

CLINICAL USES OF THE BLOOD OXYGEN DETERMINATION

The practical uses of the blood oxygen determinations are many. Although it is likely that within a few years this group will be greatly expanded, only the major clinical applications currently in use are presented:

1. Determination of arteriovenous shunts:

In general, in the presence of arteriovenous shunts (Figure 1B), (1) flow of arterial to venous blood gives a normal arterial oxygen content and an increased venous oxygen content; (2) venous flow to arterial blood causes a normal venous oxygen and decreased arterial oxygen content. In a mixture of arterial and venous blood, venous oxygen is increased and arterial oxygen content per unit volume is decreased.

(a) Peripheral-arteriovenous fistulae (Figure 1B).

(b) Cardiac-congenital cardiovascular anomalies (Figure 1). Differences between chambers must exceed at least 1.5 volumes per cent to be valid. The illustrations depict the usual findings in the more common lesions in which blood O_2 determinations may be useful.

If venous blood taken from the arm contains the same amount of oxygen as that in the right auricle and right ventricle, then it can be assumed that there is no left-to-right shunt (Figure 1A). If right ventricular blood oxygen content is equal to right auricular blood oxygen content and both are higher than the oxygen content of peripheral venous blood, there is probably a left-to-right interauricular shunt; rarely an interventricular shunt and an incompetent tricuspid valve may give similar findings (Figure 1C). If the oxygen content of right ventricular blood is greater than that of right auricular blood and the latter is equal to the oxygen content of venous blood, there is most likely a left-to-right ventricular shunt through a ventricular septal defect (Figure 1D).

With interventricular shunts and decreased flow in the pulmonary artery (pulmonic stenosis), an arterial oxygen saturation of 88 per cent or over indicates the interventricular septal defect is small and that the aorta arises chiefly from the left ventricle (Figure 1G).[2] In patients with decreased pulmonary flow and cyanosis, the compensatory erythremia results in a higher than normal oxygen content despite the decreased oxygen saturation (Figures 1F and 1G).

In tetralogy of Fallot with limited pulmonary circulation during a one-minute standard exercise test of stepping up and down from a 20 cm. height 30 times, the ratio of oxygen consumed per liter of ventilation is decreased due to limited effective pulmonary blood flow. The arterial oxygen saturation decreases immediately following the exercise and the arterial carbon dioxide content rises, due to the interventricular right-to-left shunt and not because of the inadequate pulmonary blood flow.[2] The cyanosis is accordingly intensified with exercise, since the saturation is decreased by the polluting venous blood.

In patent ductus arteriosus the pulmonary arterial oxygen content is usually normal, although on occasion an increased oxygen content has been obtained if the catheter is in the left pulmonary artery at or just distal to the ductus. Care must be taken that the catheter is not too far out in the lung, for it is possible thus to obtain a high oxygen value, probably by aspirating some oxygenated blood back from the pulmonary capillary bed.

(c) Intracranial vascular tumors: It has been reported that internal jugular blood will possess an excessively high content of oxygen during hyperventilation in patients with an intracranial vascular tumor. This fact may be utilized as an aid in diagnosis of such tumors.[7]

2. Use of oxygen saturation and 100 per cent oxygen to distinguish and evaluate the relative influence between pulmonary or cardiac disease in a given patient:

In pulmonary emphysema the arterial oxygen saturation often is below 80–85 per cent. The carbon dioxide content of the arterial blood may be as high as 7 to 8 per cent, as is the carbon dioxide tension in the alveolar air. Inhalation of 100 per cent oxygen will raise the arterial oxygen saturation materially toward normal of 95 per cent within 5 minutes if pulmonary emphysema is present. In cardiac disease without right-to-left shunt, even with pulmonary edema, the arterial oxygen saturation is rarely below 85 per cent.

In chronic cor pulmonale, unless the arterial oxygen saturation is below 80 per cent, emphysema is not sufficiently severe to play any part in the production of heart failure.[9] If arterial oxygen saturation does not rise more than 2 or 3 per cent after 5 minutes of breathing 100 per cent oxygen, this practically excludes a pulmonary factor. Conversely, a pronounced and prompt rise of arterial oxygen saturation with breathing 100 per cent oxygen is strong evidence that a major pulmonary factor is responsible for the cyanosis.

3. To detect skin color changes due to abnormal pigments, such as methemoglobin, sulfhemoglobin, Evans blue (T-1824), or carboxyhemoglobin: Spectrophotometric analysis serves rapidly to identify the interfering pigments.

4. Heart failure with slowed circulation causes stagnant anoxia of the tissues. The arterial oxygen saturation is normal but the venous oxygen saturation is decreased to 20–40 per cent. The low O_2 saturation of mixed venous blood is the one consistent finding in cardiac decompensation. Thus the arteriovenous oxygen difference is increased. The situation is similar to that which exists when there is coldness of the extremities in traumatic shock or obstruction of the venous return from an extremity by a tourniquet.

5. Oximeter circulation times: By using the oximeter, and injecting 2 cc. of 1 per cent methylene blue, intravenously, the arm-to-ear circulation time is easily and objectively obtained. By then having the patient take a breath of ambient air after a few breaths of nitrogen, the lung-to-ear time through the left heart can be determined. The difference between the arm-to-ear time and the lung-to-ear time gives the "right heart" circulation time.[1]

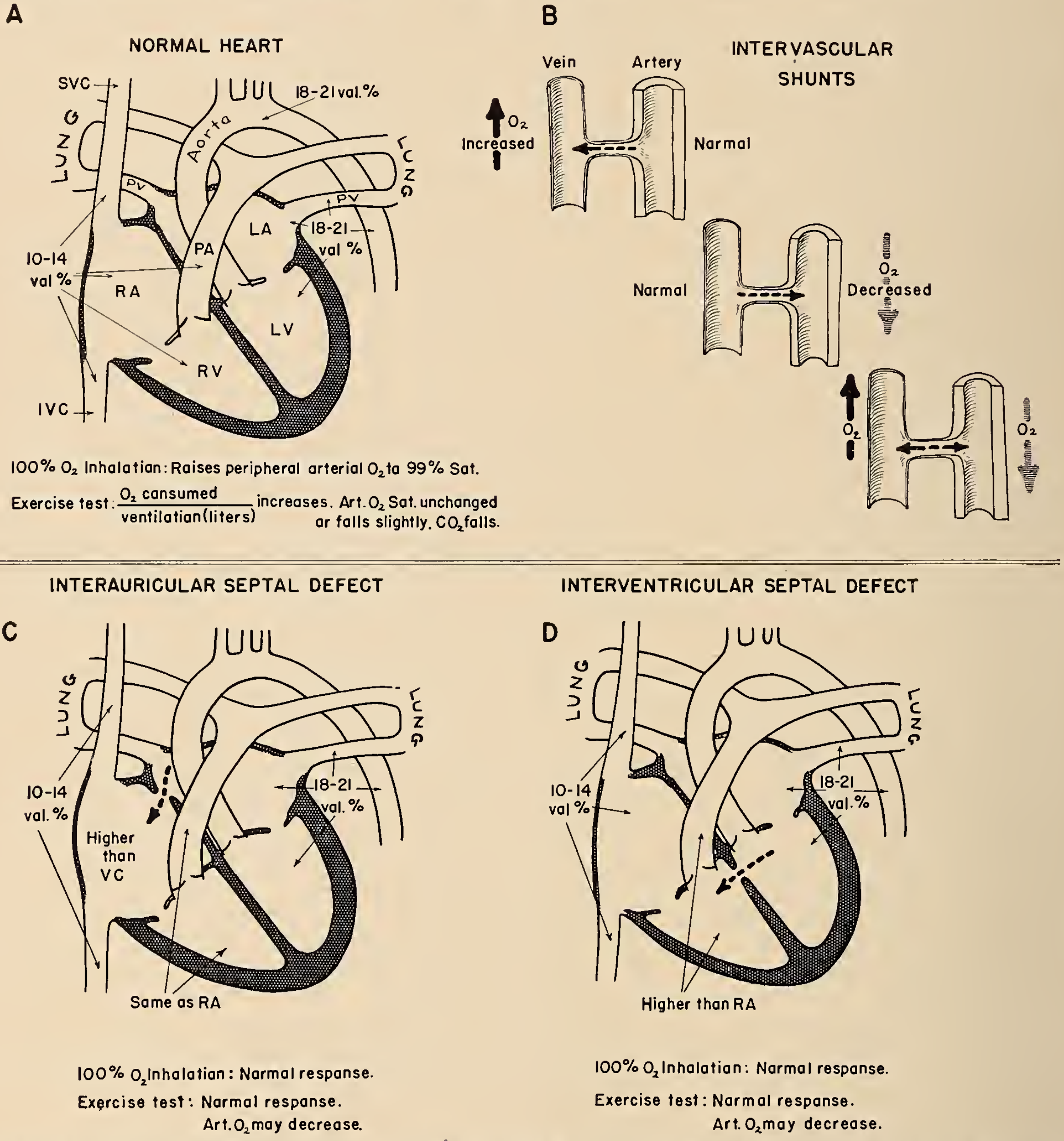
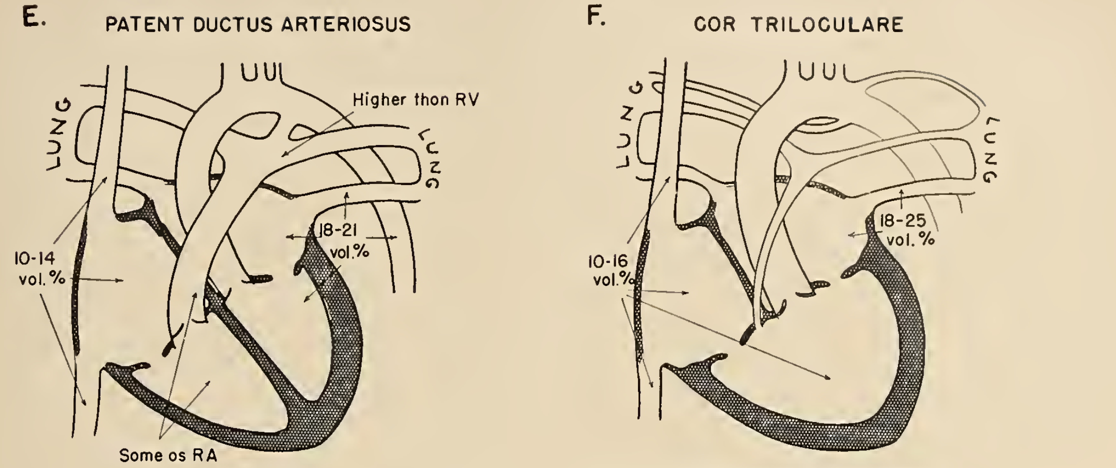

A
NORMAL HEART
SVC
LUNG
18-21 vol.%
Aorta
LUNG
PV
PV
LA
PA
18-21 val %
10-14 val %
RA
LV
RV
IVC
100% O₂ Inhalation: Raises peripheral arterial O₂ to 99% Sat.
Exercise test: O₂ consumed / ventilation (liters) increases. Art. O₂ Sat. unchanged or falls slightly. CO₂ falls.
B
INTERVASCULAR SHUNTS
Vein
Artery
O₂ Increased
Normal
Normal
O₂ Decreased
O₂
O₂
INTERAURICULAR SEPTAL DEFECT
C
LUNG
LUNG
10-14 val. %
18-21 val. %
Higher than VC
Same as RA
100% O₂ Inhalation: Normal response.
Exercise test: Normal response.
Art. O₂ may decrease.
INTERVENTRICULAR SEPTAL DEFECT
D
LUNG
LUNG
10-14 val %
18-21 val. %
Higher than RA
100% O₂ Inhalation: Normal response.
Exercise test: Normal response.
Art. O₂ may decrease.

Figure 1.—Schematic representation of the usual findings of blood oxygen determinations in the more common cardiovascular anomalies. The values serve merely as a guide, since such lesions are frequently multiple, of varying degrees of severity, and subject to changes with duration. (See additional panels of Figure 1, E, F, G and H, on opposite page.)

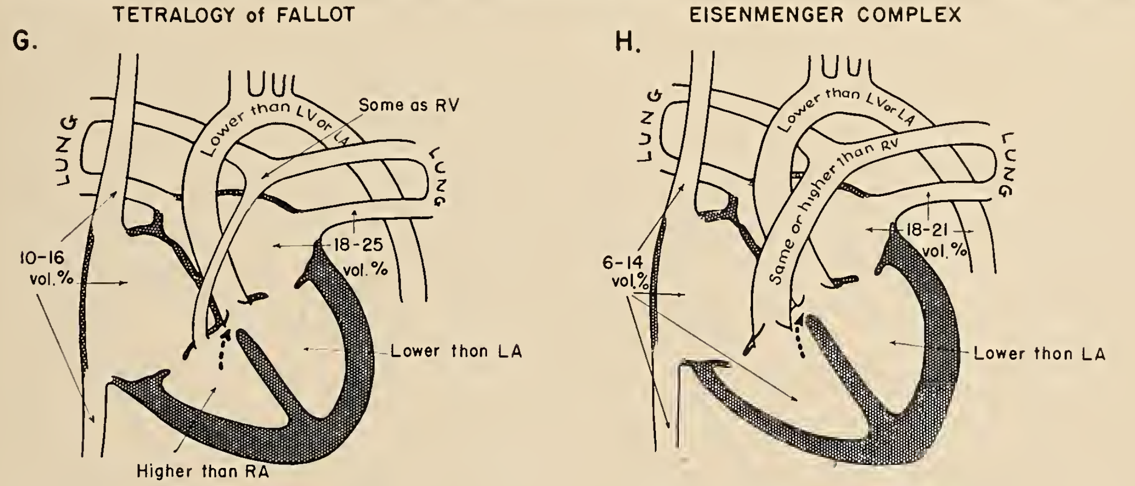

E.
PATENT DUCTUS ARTERIOSUS
LUNG
LUNG
Higher than RV
18-21
vol.%
10-14
vol.%
Same as RA
F.
COR TRILOCULARE
LUNG
LUNG
18-25
vol.%
10-16
vol.%

100% O_2 Inhalation: Normal response.

Exercise test: Normal response.

100% O_2 Inhalation: Normal response.

Exercise test: $\frac{O_2 \text{ Consumption}}{\text{Ventilation (liters)}}$ decreases. Art. O_2 decreases.


TETRALOGY of FALLOT
G.
LUNG
LUNG
Lower than LV or LA
Same as RV
10-16
vol.%
18-25
vol.%
Lower than LA
Higher than RA
EISENMENGER COMPLEX
H.
LUNG
LUNG
Lower than LV or LA
Same or higher than RV
6-14
vol.%
18-21
vol.%
Lower than LA

100% O_2 Inhalation: Normal response.

Exercise test: $\frac{O_2 \text{consumption}}{\text{ventilation (liters)}}$ decreases: $\frac{\text{Art. } O_2 \text{ decreases}}{CO_2 \text{ increases}}$

Post. op.: Cyanosis diminishes markedly. Exer. test approaches normal response.

100% O Inhalation: May increase to 90%.

Exercise test: Normal response. Art. O_2 may decrease.

In some cases P.V. blood is not fully oxygenated-further intensifying cyanosis.

Figure 1.—Schematic representation of the usual findings of blood oxygen determinations in the more common cardiovascular anomalies. The values serve merely as a guide, since such lesions are frequently multiple, of varying degrees of severity, and subject to changes with duration.

6. Determination of blood flow (direct Fick principle); cardiac or pulmonary blood flow. For example, to determine cardiac output in liters per minute:

$$\frac{\text{oxygen consumption (cc. per min.)}}{\text{arterial}^{\dagger}\text{ oxygen content (cc. per liter)}-\text{venous}^{\dagger}\text{ oxygen content (cc. per liter)}}$$

$$= \frac{240 \text{ cc. per min.}}{190\text{–}130 \text{ cc. per liter}} = \frac{240}{60} = \text{4 liters per min. cardiac output.}$$

7. Determination of oxygen consumption by arterial-venous oxygen difference:

(a) Cerebral oxygen consumption.
(b) Splanchnic oxygen consumption.
(c) Renal oxygen consumption.
(d) Oxygen consumption of extremities.

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† Since practically no oxygen is lost from arterial blood until the capillaries are reached, the oxygen content from most peripheral arteries (brachial or femoral) is satisfactory. The venous blood is obtained from the pulmonary artery by venous catheterization.

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Cardiospasm

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SUMMARY

Cardiospasm and megaesophagus are well known clinical and pathological entities but the cause remains obscure. Megaesophagus is probably congenital or developmental in origin. The majority of cases of cardiospasm can be successfully treated by forceful dilatation of the narrow area. Some cases of megaesophagus are best treated by a plastic surgical procedure which enlarges the esophageal gastric opening. Additional experience with this method is necessary before it can be correctly evaluated.

VARIOUS operative procedures for the cure of cardiospasm were first done many years ago. Mortality at that time was high and surgical treatment was largely discarded in favor of forceful dilatation of the narrowed portion of the esophagus. Improved methods of anesthesia and the use of antibiotics have lessened the risk of operation and led to a revival of interest in the surgical treatment of cardiospasm. A reevaluation of the methods of treating cardiospasm is in order, and this presentation deals with the author's experience in treating this disease at Stanford University Hospital.

Sixty-nine patients with cardiospasm have been treated. Fifty-seven patients were treated by means of hydrostatic dilatation with the Plummer bag and 12 were treated surgically. Good results were obtained for 73 per cent of the patients treated by dilatation. Too few patients have been operated upon to evaluate the results of this procedure on a percentage basis.

NATURE AND ETIOLOGY OF CARDIOSPASM

The symptoms of cardiospasm are well known. The majority of patients give a history of periodic spells of difficulty in swallowing over many years. In the early stages, the spasm is intermittent and there may be long periods of freedom from trouble. Later, the patient is unable to take any food or liquids in comfort. In the beginning, liquids, especially when cold, often cause more trouble than solid foods. Patients usually say that food seems to stick or lodge under the lower end of the sternum. Some patients may obtain relief by standing and drinking large quantities of water, thus forcing open the spastic area by means of pressure from above. Nearly all patients at times are forced to vomit to obtain relief. Pain under the lower end of the sternum, which at times is severe, occurs in about one-half of the patients. Despite the nature of the disease, many patients go on for years without any loss of weight or strength, while others become emaciated or anemic. The disease has to be differentiated from cancer of the esophagus. In the majority of cases this is not difficult to do. However, one case was observed in which a long history of cardiospasm obscured the true condition. In this case both the x-ray and esophagoscopic examination seemed to confirm the diagnosis of cardiospasm. The patient was greatly relieved for three months following dilatation and then had a recurrence of symptoms. X-ray studies at that time were indicative of possible neoplastic disease and exploration showed the patient to have an inoperable cancer of the cardia.

PATHOLOGY

The narrow point in the esophagus extends from the esophageal hiatus of the diaphragm to the point of junction between the esophagus and stomach. The esophagus becomes greatly dilated above the hiatus of the diaphragm. In severe cases, the dilatation is extreme and the esophagus appears lengthened and sacculated as well as dilated.

Direct observation at operation confirms these findings. The wall of the esophagus itself does not appear to undergo any pronounced changes, although it may be slightly thickened and show some evidence of mild fibrosis. In most instances the mucosa appears normal or mildly irritated as a result of the chronic stasis. In almost all cases observed by the author the ring of the diaphragmatic muscle marking the esophageal hiatus was considerably thickened and hypertrophied. This finding has been so constant as to tend to confirm the early views of Jackson, who believed the condition a spasm of the diaphragm rather than of the esophagus.

In the ordinary cases of cardiospasm, the dilated esophagus tapers smoothly and gradually for a distance of several centimeters to the point of maximum narrowing at the esophageal hiatus in the diaphragm. In such cases the esophagus curves slightly and gracefully to the left towards the cardia. In a few extreme cases, not only is the esophagus greatly dilated but it is also lengthened and it terminates in an S-shaped curve above its narrow point. The author prefers the term megaesophagus, rather than cardiospasm, to describe this latter condition. There are reasons for believing the two lesions are different and that one is not merely an advanced stage of the other. Megaesophagus has been found in infancy and even in fetal life. Because dilatation involves greater risk in such cases and at times cannot be done because of angulation of the lower esopha-

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gus, it is in this type of case that operative surgical procedures are most often indicated.

ETIOLOGY

No conclusive contributions have been made in recent years which would clarify understanding of the cause of cardiospasm or megaesophagus. It is the author's belief that the latter may be of developmental or congenital origin. Nothing is to be gained at this time by repeating the numerous theories as to possible cause or causes of cardiospasm. The author's experience with the disease leads to the belief that some nerve dysfunction must be an important factor. It should be emphasized, however, that the condition is an organic one and that while many of the patients may be of the nervous or neurotic type, treatment along purely psychic lines will not avail.

TREATMENT

Dilatation:

The procedure now used by the author consists of dilating the narrow area by passing a No. 45 French olive followed at once with a No. 60 French olive guided over a previously swallowed and anchored silk thread. Such treatment may prove sufficient in some cases, but if it does not, hydrostatic dilatation is done with a Plummer bag. Fifty-seven patients, 25 men and 32 women, were treated by this method. The average age of the patients was 40 years; the oldest was 70, the youngest 14. Thirty-eight patients were given one dilatation, 19 more than one. The results were good to excellent in 42 patients and only fair to poor in 14 cases. Several patients have been almost completely relieved of all symptoms for a number of years following a single dilatation. The results on the whole are not satisfactory in those patients requiring repeated treatments. A single extreme forceful dilatation will give good results where more frequent half-hearted attempts fail. There is naturally some risk in this procedure. One patient treated a number of years ago developed mediastinitis and died. Today this patient's life might have been saved by prompt recognition and surgical exploration and repair of the ruptured esophagus.

Surgical Treatment:

Patients with megaesophagus or cardiospasm who have not been relieved by dilatation may require surgical treatment. In the series here reported, 12 patients were operated upon. In one, gastrostomy was done and the spastic area dilated from below. This was done years ago; proved unsatisfactory, the method has been discarded. In another patient the muscular ring encircling the esophageal opening in the diaphragm was partially excised. The patient was not benefited and went into shock at the start of a subsequent operation in which it was planned to do a plastic procedure on the esophagus. Only the incision had been made and this was promptly closed, but the patient died 24 hours later without having regained consciousness.

Esophagogastrostomy or plastic procedure on the cardia was carried out in 10 patients. All these patients have been completely relieved of dysphagia. However, three patients have complained of a burning sensation under the sternum which occurs some time after they have eaten and when they are lying down at night. In one patient this condition was pronounced and x-ray studies indicated that she might have a small peptic ulcer of the esophagus. Patients who had the burning sensation were relieved but not completely cured of the symptoms by being put on a bland diet and antacid therapy. These cases are being reviewed in an attempt to determine the best type of plastic procedure to perform and whether or not additional vagotomy is indicated in some cases.

2000 Van Ness Avenue.

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The Present Status of Abdominal Fascial Transplants

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SUMMARY

In recent years improvements have been made in techniques for transplanting fascia into the muscles of the abdomen to take over the function of paralyzed muscles. The techniques are described in this presentation.

Since muscular coordination of pelvis and thorax plays an important part in control of the extremities, better methods of placing transplants across the abdomen to link these regions offer, coincidentally, the benefit of better use of muscles in the arms and legs.

If done early and skillfully, abdominal fascial transplants and allied transplants not only aid in restoring function but often prevent deformities.

THE technique of abdominal fascial transplants has evolved and the field of application has broadened since 1932 when the author reported* on the first eleven cases in which he had performed the operation to strengthen the abdominal wall of patients with paralysis of muscles in that area as a result of poliomyelitis.

To understand present procedure, it should be remembered that the base of muscle action must be maintained in a fixed position to obtain effective motion. To get such stabilization of the base, a flow of action from one muscle group to another is needed until the base is reached.

For example, when a leg is raised, the weight of the leg is transmitted to the pelvis, thence via abdominal and lateral loin musculature to the thorax and spine. If one link in this chain is broken, as when all or part of the abdominal muscles are paralyzed, the pelvis will tip downward and/or sideward.

The presence of Beevor's sign (movement of the umbilicus towards the active portion of the abdominal wall) is indication for the operation. In a normal abdominal wall, or in a completely paralyzed wall, this sign is absent. It exists only when parts of the muscles are affected.

The operation itself consists of placing sections of fascia in positions to act as tendons to transmit the force to the pelvis or rib cage from the acting section of the abdominal wall.

If the lower half of the abdomen is paralyzed (both lower obliques and lower rectus) the umbilicus will move upward during any movement of legs or upper trunk. Correction calls for three straps, two from just above the umbilicus to the anterior ends of the iliac crests, and another strap directly downward to the symphysis pubis.

If the upper half of the abdomen is paralyzed, correction requires two straps from the active lower recti just below each side of the umbilicus, running up to costal margin and attached 2 or 3 inches outward from the midline. The distance varies with the size of the patient. Thus, force from both lower obliques and lower recti will be split and effectively anchored. The direction of the arms of this "Y" may be altered in accordance with the degree and position of the weakness. For example, if an upper right oblique has some strength but the left has none, and the upper rectus none, the right arm of the "Y" should be placed nearer to the midline, and the left arm farther outward.

If the upper and lower obliques on the same side are both paralyzed, with a good quadratus lumborum on that side and a good rectus in front, two straps are needed—one from the umbilicus to the crest above the anterior superior spine, the other upward to the rib cage on the same side. These should go above the floating ribs. If the costal margin is thick it may be split and the fascial strip passed through the slot and turned back upon itself, or, if this is more convenient, it may be passed around a rib subperiosteally. In the latter case, care should be used to avoid damaging intercostal vessels.

If the lateral loin muscles of the paralyzed side are also paralyzed, three straps are used—two as noted in the preceding paragraph, with a third placed laterally in the mid-axillary line from the crest to the tenth rib and fastened around the rib. The iliac incision should be about 3 inches long; the lower oblique strap is inserted through a hole in the ilium at the front end of the incision, and the lateral strap at its other end. Straps should be fastened in the umbilical area first.

While one surgeon makes beds for the implants in the various incisions in costal, iliac, and umbilical areas, assistant surgeons take a fascial strip from the opposite leg. The full-width strip is then placed on a board, spread out, and all fatty substance scraped from its ends for about 1 to 1½ inches. It is split longitudinally to make two or three strips. Next, the tunneler is passed through from one incision to the others and clamped lightly to a strip, which is then pulled through the tunnel. An assistant grasps the heavy tissue at the central incision with a Kocher clamp and holds it taut to resist the thrust of the tunneler (usually a uterine packer) as it passes through the subcutaneous fat layer. If the abdomen is thin-walled, care must be taken not to puncture the skin.

A flap of rectus aponeurosis (previously made by inch-apart parallel incisions) is then picked up and the end of the fascial strip spread out under it and stitched to the muscle with four silk stitches. The same procedure is then done with the other strip, and the aponeurotic flap fastened with No. 0 chromatic suture.

At this stage the operating table is broken in the middle to slacken the abdominal wall tension. The assistant grasps the stem of the navel and slowly, steadily pulls against the healthy section of the muscle while the surgeon and another assistant pass the lower end through the ilium or ribs (as the case may be). After the lower end is passed through, the end is clamped and held at the required tension while the surgeon passes a suture through the periosteum and fascial strip. The end is then passed back over the ilium or ribs and stitched to itself with silk. When the second insertion is made, care should be taken to take up all slack and prevent alteration of tension of the first strap.

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*In a paper read at a meeting of the American Orthopedic Society in Toronto.

If a lateral strap also is passed, the table is somewhat flattened (not made completely flat) and the last strip is run from the tenth rib to the ilium. The body is swung over, or the legs or brought around to slacken the side. For patients with flat backs or little lordosis, the table is broken very little. If there is much lordosis and a quite flat abdomen, considerable flexion is given.

The surgeon must take various factors into consideration in deciding the amount of tension to be placed on the straps. The degree of shortening in the active sections of the muscle, as well as contractility and strength, affects the possibility of elongation. The stretching of the points of attachment, the curvature of the abdomen, the amount and character of the fat, and the degree of elasticity in the active section all must be considered in the final adjustment of tension.

Sutures should be removed in 12 to 14 days and free floating exercise in a therapeutic pool should be started in the third week. The patient should walk in deep water at the end of the third week and in shallow water in the fourth week. After that, wearing a corset or girdle, the patient should walk with crutches. If extensive involvement of the leg is present and double full-length leg braces are used, a shoulder harness permits the weight of the braces to be carried from the shoulders so that little load is put upon the new transplants. After six or seven weeks this harness can be loosened gradually or left unconnected for brief periods before it is left off entirely. Fascial abdominal transplants should be done as early as a clear pattern of imbalance can be determined and before contracture and shortening of the overacting sections of the muscles take place. If the whole abdominal wall is paralyzed, three or four months after the acute attack is not too early for the operation. Continued training of the muscles of the extremities will activate the trunk stabilizers (notably the abdominals). If strength is present in some sections of the abdominal muscles and absent in others, imbalance will be increased. Improvement of performance cannot be obtained as long as the abdominal fixators are out of action or are seriously unbalanced. The original technique of the operation in which the sheath of the rectus was opened from umbilicus to symphysis, the aponeurosis lifted and the fascial strap placed flat on the muscle, has now been modified so that this strap is attached as indicated in preceding paragraphs. Tunneling is made down to the lower incision over the symphysis where it is fastened through a subperiosteal opening in the symphysis (as previously described for the iliac attachment).

In cases in which all abdominal muscles are paralyzed, criss-cross straps are run anteriorly from the crest of one ilium up to the opposite costal border via the central incision. This is the first stage of the operation. At a second stage, about eight weeks later, two lateral straps are put from mid-ilium to the tenth rib. If the back of the patient is fairly flat, these straps are placed a little in front of the mid-axillary line; in case of lordosis they are put still farther forward.

Occasionally if the patient has a short thigh it is hard to get a strip that is long enough to reach diagonally across a long abdomen. In this event two spliced strips will work satisfactorily. In one such case, one long strip was run down from one rib incision to the middle incision, thence up to the opposite rib incision. Two shorter pieces then were attached at the ilia and passed upward and fastened around the loop made by the first strip. The crossed straps should be left free to glide over each other. Otherwise the rotatory force of the trunk will not be transmitted to the opposite side of the pelvis.

Another procedure has been evolved to give some use of the legs to patients who are unable to walk because of paralysis of the flexor muscles of the hips. One strip is run down from a good rectus abdominis into the leg, where it is fastened to the ends of the detached sartorius and a strip from the front portion of the tensor fascia femoris at a point 2 inches below Poupart's ligament.

The author uses a similar fascial extension to correct gluteus medius limp.[1] A fascial strip 1½ inches wide is left attached at the trochanter, fixed to its deep fascia with silk. The free end of the strip is passed upward through the fat to an upper incision in which a section of the external abdominal oblique has been lifted and detached from the crest. After the gap in muscle and fascia under this projecting piece of muscle is closed, the leg is abducted and the end of the fascial strip passed into the muscle tab. While on reasonable tension the strip is fixed in place with several silk sutures. The lower end is tapered down to a point by carrying the muscle strands around the strip. This serves to transmit some of the fixator action directly to the trochanter, helps the weak medius, and acts to stabilize the pelvis laterally. No postoperative splints are needed. The patient lies on a flattened bed and the leg is held in a 45-degree abduction. It is tied in this position with a broad bandage run from a point above the knee to an anchorage on the side of the bed. A countering bandage is placed around the pelvis and fixed to the opposite side of the bed, and a third band is placed around the chest and anchored to keep the patient from slewing to a diagonal position on the bed.

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1. Lowman, C. L.: Lateral fascial transplants for controlling gluteus medius limp, Physiotherapy Rev., 27:355-357 (Nov.-Dec.), 1947.

Carcinoma of the Breast

Possible Significance of Menstrual Cycle in Results of Operation

Frank R. Ruff, M.D., *Fresno*

SUMMARY

Among 55 patients upon whom mastectomy was done for cancer of the breast, survival without evidence of metastasis (after varying periods of follow-up) was significantly higher for those who were operated upon in the seven days preceding the beginning of menses than it was for those who underwent operation in any of the three other seven-day periods in the menstrual cycle. Moreover, in a comparison of results of operations done in each of the four seven-day periods, there was a graduating increase in mortality and metastasis from the first period (the seven days preceding menses) through the fourth period.

The results of the study of this small series are considered not conclusive but indicative of possible profit in studies of larger and better controlled series.

A COMMON experience in surgical treatment of cancer of the breast is that while operation in one case may be successful, the same procedure in another, identical by all conventional means of assay, may be a failure. One patient following the operation may live out a long life entirely free of the disease, while another of the same age with cancer of the same extent and at the same site, proven by biopsy to be of the same type and grade, and removed with the same skill, may die of the original lesion or of metastasis.

In the belief that an explanation might lie in some chemical, physical or hormonal factor which had not been properly considered, the author in 1945 turned to a consideration of the time of operation in relation to the menstrual cycle. Review of the literature and questioning of surgeons, internists and pathologists led to the conclusion that there is universal agreement that the best time to operate for removal of cancer of the breast is "just as soon as possible."

MATERIAL FOR STUDY

In the period 1945-48 the author, a radiologist working closely with surgeons and hence with opportunity to observe the results of operations. treated 154 patients following mastectomy for cancer of the breast. For purposes of study to ascertain what bearing the time of operation within the menstrual cycle might have upon prognosis, 99 of the 154 cases were excluded because the patients were past the physical menopause or because of incomplete records. In the remaining 55, the series upon which this report is made, there was positive diagnosis of cancer in all cases but neither the grade of malignancy nor the extent of the lesion was taken into account as this information was not uniformly available. The operations were done by a number of surgeons. As the series includes patients operated upon over a four-year span of time, the period of follow-up varies accordingly. Other data as to the ages of the patients, survival after operation and evidence of metastasis are shown in Table 1.

METHOD OF STUDY

For the purposes of the study, the menstrual cycle was divided into four seven-day periods. The seven days immediately preceding the beginning of menses was designated Period I, with Periods II, III and IV made up, respectively, of the first to the seventh day from the start of menses, the eighth to the fourteenth day and the fifteenth to the twenty-first day.

Review of hospital records disclosed that of the 55 patients, 15 were operated upon in Period I, 10 in Period II, 16 in Period III, and 14 in Period IV. Results following operations done in each of the four time brackets are shown in Table 2.

Thus it can be seen that in those cases in which the operation was done in Period I the results with regard to survival and absence of evidence of metastases were better, percentagewise, than the results

Table 1

Age Groups Years	No.	Per Cent	Alive	Per Cent	Dead	Per Cent	Total Metas.	Per Cent	Alive; No Evidence of Metas.	Per Cent
20-30	4	7	3	75	1	25	4	100	0	0
30-40	18	33	12	67	6	33	13	72	5	28
40-50	33	60	22	66	11	33	16	48	17	52
Total	55	100	37	67	18	33	33	60	22	40

TABLE 2

Time of Operation	Number of Patients	Alive	Per Cent	Dead	Per Cent	Metas.	Per Cent	No Evidence of Metas.
1st period, 1 to 7 days before menses	15	13	87	2	13	4	26	74%
2nd period, first 7 days after beginning of menses	10	8	80	2	20	6	60	40%
3rd period, 7 to 14 days after beginning of menses	16	10	63	6	37	10	63	37%
4th period, 14 to 21 days after beginning of menses	14	5	36	9	64	12	86	14%
Total	55	36	65	19	35	32	58	42%

following operations done in any of the other three periods. Moreover, the disparity between results widened progressively from Period I through Period IV.

DISCUSSION

It is recognized that there are many factors not considered in this study which, if they were included, might considerably affect the comparisons made. The age of the patients, for instance, was not taken into account, although as is indicated in Table 1 there was pronounced difference in results as between the younger and older patients. And, as previously indicated, there may have been variations with regard to the grade of malignancy, the extent of the lesion and the surgical skill with which the operations were done. However, even if these inconstant factors were resolved, it is doubtful that the broad differences in results as between operations done in one period and those done in the others could have been accidental.

Because the series was small and the method of study not foreclosed to error, the results are not looked upon as conclusive that there is a "best" period in the menstrual cycle in which to perform mastectomy for cancer of the breast. However, as the results are believed to be at least indicative, they are offered in the hope that similar studies may be carried out by others who have access to records of larger series of cases and opportunity to eliminate inconstants that might dilute conclusions.

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Advances in Plastic Surgery

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SUMMARY

The influence of the war period has been reflected in an active trend toward the conservation of time in the execution of reconstructive operations. The myriad improvements in the technique of tissue transplantation and the use of large flaps rather than tubed pedicles have been in keeping with this trend. The goal of the complete restoration of function and appearance applies not only to the correction of post-traumatic defects but also to the cosmetic repair of defects created by the surgical excision of malignant tumors and to correction of congenital anomalies.

DAVIS[7] defined plastic surgery as "that branch of surgery which deals with the correction of deformity, whether congenital or acquired, and with the restoration of function and the improvement of appearance." This definition is an inclusive one which admits the overlap of plastic surgery on the activities of other surgical specialties. More accurately, plastic surgery deals with the transplantation of tissues. An operative procedure becomes a plastic surgical problem wherever the tissues are shifted or transplanted.

Full attention to the importance of the correction of deformity and to the value of the methods of plastic surgery did not come as the result of one world war. It came as the outcome of World War I, followed by a 23-year interim of peace during which a relatively small group of surgeons established the principles of plastic surgery; and it developed in full flower during World War II when the press of great numbers of casualties demanded the segregation of patients by specialty for effective treatment.

The interim between wars saw establishment of the principles of plastic surgery and the rapid advance of techniques and methods. Two national plastic surgical societies emerged and the American Board of Plastic Surgery was organized. During World War II the volume of patients requiring reconstructive operations was such that it was necessary for the medical corps of the Army and the Navy to set aside 14 large hospitals for the care of them. In addition the Army provided maxillofacial teams which accompanied the troops in battle and provided the all-important early care of severe wounds of the face. The total number of patients requiring plastic repair operations as a result of World War II has not been made a matter of public information, but at the close of the war there were over 11,000 patients awaiting reconstructive operations in Army hospitals.

Experience in the field of plastic surgery during World War II developed few new, basic principles. However, the established principles of plastic surgery were applied on a wide scale by many surgical technicians and a great many advances in techniques were made. Among these were the improved techniques for the cutting of skin grafts, the development of organic glues for the fixation of skin grafts, the use of composite grafts of skin and cartilage from the ear and of skin and fat from the ear lobe, the use of diced cartilage in the correction of bony defects, the popularization of the use of grafts of cancellous bone in the treatment of non-union fractures of the mandible, the use of inert metals (vitallium, tantalum or stainless steel) for repairing defects of the skull, the pyruvic acid treatment of burns, the surgical closure of decubitus ulcers in patients with paraplegia, the development of cartilage and bone banks, and, finally, the recognition of the value of tattooing (aseptically carried out), for the coloring of skin grafts on the face.

Since the conclusion of World War II, it has become apparent that the trend toward speed in reconstruction, forced upon surgeons during the war, has fixed itself firmly into the principles of the practice of plastic surgery. The rapid construction of external ears, the use of direct flaps rather than those constructed in several stages, the use of large, wide flaps rather than tubed pedicles, the ingenious use of sliding or rotated regional flaps as a time-saving method, the emphasis on the value of early skin grafting over wounds as the method of prevention of further deformity, the trend toward the use of mutiple excisions—all of these may be looked upon as advancements in therapy which were achieved as an effect of the tremendous burden sustained during World War II. In addition, a professional by-product of the military period was the spirit of close cooperation which characterized the professional relations of the dental surgeon, the orthopedist, the neurosurgeon, the general surgeon and the plastic surgeon.

In order to cover this subject in a brief presentation the material has been divided into three sections: Plastic surgery in trauma (including burns), plastic surgery in the management of benign and malignant tumors and plastic surgery of congenital anomalies. In addition, reference will be made to

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From the Department of Surgery of the New York Hospital and Cornell University Medical College.

Presented before a meeting of the Hollywood Academy of Medicine, Los Angeles, October 14, 1948.

some developments in the surgical correction of physical irregularities (as distinguished from cosmetic surgery) and of a few miscellaneous conditions which have engaged the attention and interest of plastic surgeons.

PLASTIC OPERATIONS IN TRAUMA

In this presentation emphasis will be placed on those details of management immediately following injury which have a direct effect upon the later plastic reconstruction. Of utmost importance is the early closure of the fresh wound. The axiom that the longer the wound remains unepithelialized, the more dense the scar and the more severe the resultant deformity, cannot be denied. In many cases infection prevents closure by secondary suture, but closure by free skin graft was successful in 94 per cent of war wounds with which the author had experience.

In the management of severe fractures of the jaw, the principle of holding the bony fragments in proper relation to the upper jaw, without concern for the size of the wound of soft tissue, is exercised by the combined use of the methods of external and internal fixation. In mandibular fractures the maintenance of normal position of major fragments from the time of injury greatly minimizes the problem of reconstruction. In the postoperative care of skin grafts, wet dressings (frequently changed) are used as a method of achieving successful skin grafting over contaminated wounds. The methods of skin traction and skeletal traction for suspension of the extremities are utilized to facilitate the dressing care. Organic glues, consisting of a paste of white blood cells and prepared plasma, are now limited to use in the management of those wounds to which, by reason of anatomical location, pressure cannot be applied effectively during the early postoperative period. The accompanying illustrations show the advantages of large flaps rather than tubed pedicles in the closure of large defects. Use of them allows for the migration of abundance of skin and soft tissue in greatly diminished periods of time. Attention also is called to the superiority of multiple excision of facial defects over the method of excision and replacement by free grafts, and to the value of the composite free graft of skin and cartilage from the ear in the correction of defects of the nose. The use of the immediate flap has been popularized as a time-saving procedure. Cancellous bone and diced cartilage now are widely used as filling material.

In the past ten years the treatment of burns has been the subject of intense interest on the part of general surgeons and plastic surgeons alike. Developments have included the use of the pressure dressing to prevent loss of plasma, the intravenous use of blood plasma to replace that which has been lost, the topical use of pyruvic acid as an agent to accelerate the rate of separation of slough in burns of third

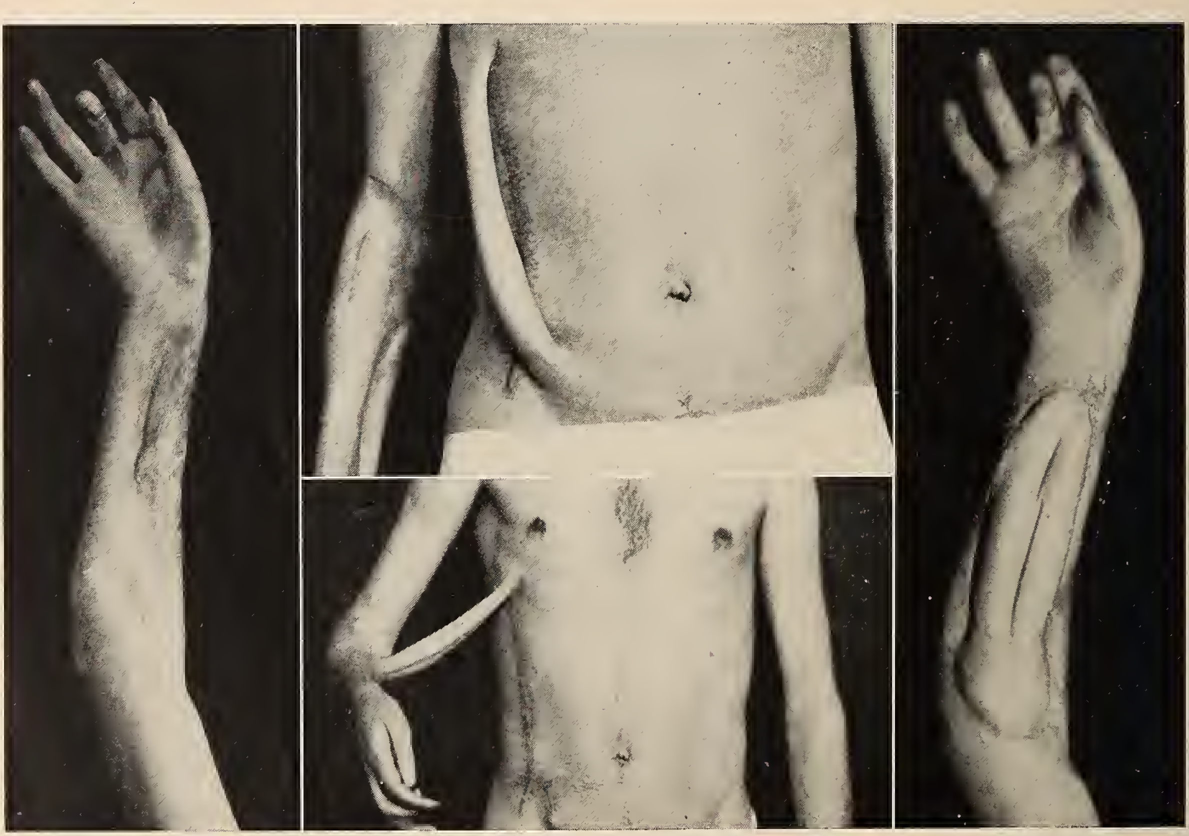

Figure 1.—Post-traumatic scar of forearm treated by tubed pedicle. Three operations and 14 weeks of hospitalization were required in this case.

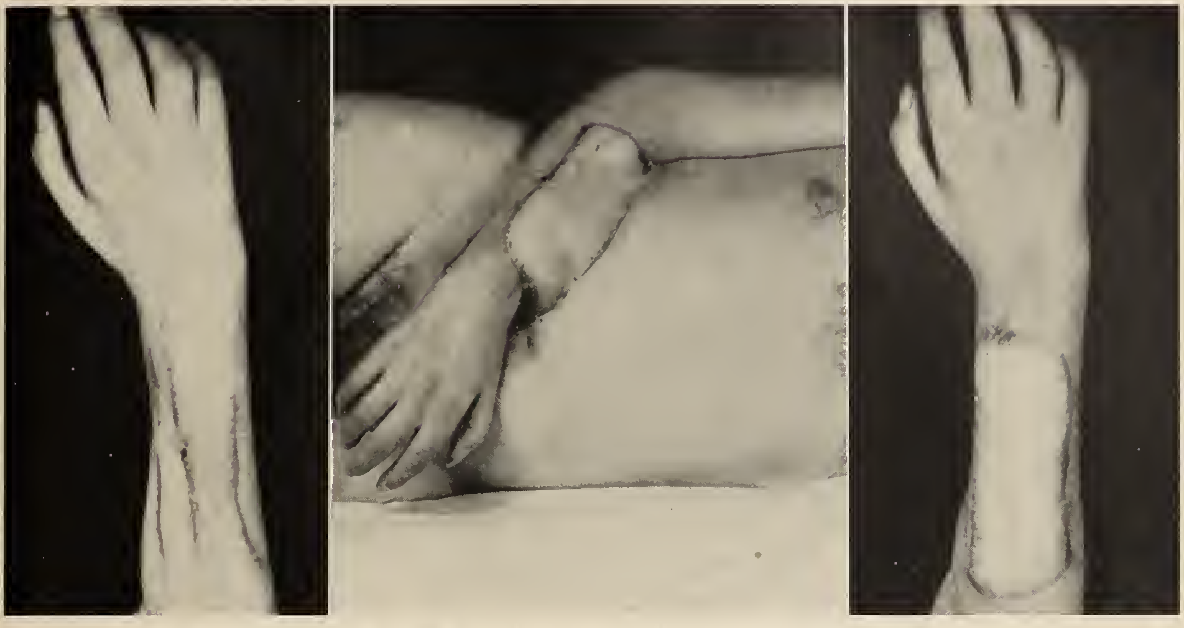

Figure 2.—Post-traumatic scars of forearm treated by direct abdominal flap. Only two operations and four to six weeks' hospitalization are required for the successful transplantation of this type of flap.

degree, the use of penicillin to control infection, and emphasis on the importance of early skin grafting over burns in order to prevent contracture. In the management of scars due to burns the trend again has been toward reduction in the number of operations required for reconstruction and in the period of hospitalization.

PLASTIC OPERATIONS IN THE MANAGEMENT OF TUMORS

The methods of reparative surgery are adaptable to treatment of malignant tumors of the face by radical surgical excision in a high percentage of cases.[5] The principles involved in radical excision are:

1. Generous estimate of the amount of tissue to be removed with the tumor.
2. Placing the incisions parallel to the lines of elasticity of the skin.
3. Combined excision of the tumor and of the regional lymph nodes "en masse," when feasible and if the nodes are involved.
4. Unhesitating sacrifice of important regional structures such as the nose, the eye, the mandible or the ear, when these are in the zone of excision.

If the patient is not to emerge from the operative procedure as a permanent facial cripple, the surgeon who performs the radical excision must be mindful of the basic principles of reconstruction of the face. These include:

1. The maintenance of normal position of bone fragments after excision of the mandible.
2. The use of rotated or sliding flaps of tissue adjacent to the defect created by excision.
3. The suture of mucous membrane to skin when through-and-through defects of the cheek or of the floor of the mouth are produced.
4. The use of the temporary Thiersch graft to cover the wound of excision if permanent closure cannot be effected at the time. The use of this thin graft prevents the formation of granulation tissue with resultant scar and the deformity of contraction. It also allows for adequate observation for recurrence in the period during which the patient awaits permanent reconstruction.

In the final reconstruction, the plastic surgeon may require the following:

1. Free grafts of skin, derma, fascia, cartilage or bone.
2. Pedicled flaps from a distant site.
3. Intraoral and ocular prostheses.

Not all patients with malignant tumors of the face are in the older decades; nor is the fact that the patient has lived three score and ten or more years justification for the fallacy that facial reconstruction is relatively unimportant. A plea, then, is made for the exercise of the method and the principles of reparative surgery at the time of the primary, radical excision of carcinoma of the face.

It is general opinion that experience in military service with cases in which there was extensive loss of tissue has increased the interest of the profession in surgical excision of tumors of the head and neck. Illustrations of cases demonstrating these methods are shown. Attention is called to the importance of color match of skin grafts transplanted to the face. This will be referred to later. The necessity for radical excision, often including underlying bone, in the cure of recurrent carcinomas of slow growth is emphasized. The opinion is advanced that therapy by radium is not justifiable in the management of benign tumors of the head and neck. This opinion is held because the patient so often is presented for surgical excision of a scar which is the result of radiation therapy. The single application of large amounts of x-radiation (at the operating table) is a useful procedure in the management of deep-seated cavernous angiomata.

Experience has shown that boldness of surgical attack on tumors of the head and neck is rewarded by an increased percentage of cancer cures. Advances in reconstructive surgery have increased the scope of surgery in the removal of tumors of the face. The tattooing of skin grafts has made it possible to use large flaps (taken from protected areas of the surface of the body) on the face and yet obtain fairly normal appearance.

PLASTIC OPERATIONS IN CONGENITAL ANOMALIES

Davis[7] has reported that 94 per cent of cases of congenital deformities of the head and neck are hare-lip, cleft palate or both. The frequency of occurrence of this anomaly at the New York Hospital is one in 700 births. The successful management of this deformity demands not only the operative repair but also the close observation of the child until, in the age of adolescence, he has attained the goal of unnoticeable deformity and perfect speech. The mantle of responsibility rests squarely upon the surgeon who performs the first operation. It is likely that no other attending physician will have the interest necessary to carry such a child through the steps of speech training, reconstruction of the palate for the correction of deformity of speech, orthodontia, psychological adjustment and final correction of details of appearance. With this concept the plastic surgery clinic of the New York Hospital has been so organized that related services such as speech training, orthodontia and psychotherapy are available under the direction of the guiding surgeons.

The anatomy of the palate is taken into consideration in the technique of the one-stage push-back operation.[4] The advantage of gaining increased palatal length in one operation lies not only in the fact that the period of hospitalization is diminished but also in that multiple operations result often in thickening and relative immobility of the palate, a condition which militates against the physiologic control of the soft palate in speech. The epithelialization of the raw surface on the nasal side of the soft palate is of importance in the prevention of the recurrent shortening of the palate. The inlay graft of skin, as introduced by Baxter,[2] is a valuable adjunctive method of accomplishing this end. Recently the pharyngeal flap has been popularized as a method of restoring normal speech in cases in which this result has not been achieved by multiple operations on the palate.

Congenital absence of the ear is a condition in which advancements in reconstructive surgery have been made. Reconstruction of the external ear[6] is accomplished in two or three operative stages executed over a period of eight weeks. The use of precast fibrocartilage as introduced by Young[12] has been applied to the reconstruction of the external ear by Peer[9, 10] and by Aufricht.[1] Diced cartilage, or small strips of cartilage, are incased in a mold (made of vitallium or acrylic and fashioned in the shape of the auricular cartilage) which then is buried in the subcutaneous tissue of the abdomen for a period of three months. On removal the shape of the cast fibrocartilage conforms to that of the auricular cartilage. The author's experience with this procedure in one case leads to the opinion that such precast cartilages do not maintain their shape as well after transplantation as do carved sections of costal cartilage.

In the management of congenital capillary hemangiomata, or port-wine stains, attention is directed to the fact that 80 per cent of these are subdermal. In these cases the overlying normal derma lends itself perfectly to the deposition of flesh colored pigments. This treatment,[3] administered as in the technique of tattooing, gives an effective permanent camouflage of the color of the lesion. In the 20 per cent of cases in which the abnormal vascular dilatations are in the upper layers of the derma, the only available method of treatment is surgical excision, in multiple stages, with the advancement of regional skin of the face and neck and, in some cases, replacement of all or part of the area by free skin graft.

PLASTIC OPERATIONS FOR PHYSICAL IRREGULARITIES

This presentation does not propose to deal with cosmetic surgery. But when a physical irregularity of the body is the cause of commercial handicap or of psychic disturbance, the need for reconstruction is very real. Numerous advances have been made in the surgical techniques of rhinoplasty, otoplasty and mammaplasty. Recently there has been increased use of the method of reconstruction of the breast with free transplantation of the nipple. The graft is a composite one consisting of nipple, areola, mammary ducts and erectile tissue. The method is objected to by those who favor transposition of the nipple and breast on the grounds that free transplant of the nipples prevents lactation. This is true. However, observation of 30 cases shows that nipples which have been transplanted regain sensation, color, erectile and erotic functions.

PLASTIC OPERATIONS FOR ELEPHANTIASIS

Surgeons who have had experience in the treatment of elephantiasis are mindful of the high percentage of failures following the use of the Kondoleon operation and the Homan operation. Based on a thought advanced by Gillies[8] over 20 years ago, renewed interest has been shown by plastic surgeons in the surgical correction of lymphedema and elephantiasis. The method is based on the logic of the transplantation of a large flap of normal skin and subcutaneous tissue from the torso, across the groin or axilla, to the proximal part of the affected extremity. Swelling of the tissue of the flap after the wounds have healed is interpreted as evidence that the flap is carrying an increased load of lymph away from the extremity. Experience with five cases to date has indicated that such a flap is not capable of affording adequate drainage of lymph from an extremity which has been lymph-static for a long period of time. The solution appears to lie in the diminution of the circulatory burden by the excision of skin and subcutaneous tissue from the distal portion of the extremity. In the leg, this means the excision of all skin and subcutaneous tissue from the tibial tubercle to the malleoli, with the exception of a small strip of skin and fat which is left *in situ* along the crest of the tibia. This latter step was suggested by Poth.[11] Experience so far has indicated that this method gives good promise of rehabilitation in cases of severe, chronic lymphedema and elephantiasis.

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CASE REPORTS

- Septicemia Following Saphenous Ligation
- Interauricular Septal Defect
- Leukemoid Reactions in Carcinomas
- Delayed Traumatic Rupture of the Spleen

Septicemia Following Saphenous Ligation

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In a surgical procedure as commonly performed as ligation of the internal saphenous vein for the correction of varices, it is a fortunate circumstance that serious postoperative complications are relatively rare. The case here reported illustrates some of the technical and therapeutic delinquencies which can be associated with an operation of this kind.

CASE REPORT

The patient, a white male, aged 53 years, was hospitalized March 19, 1947. Almost three weeks previously a right internal saphenous vein ligation and division had been done under local anesthesia at another hospital. A massive hemorrhage occurred the first postoperative day and 1,000 cc. of blood plasma was given. The patient was again taken to the operating room where, apparently, considerable difficulty was encountered in controlling the bleeding. The patient was returned to bed with the wound packed. Subsequently a temperature of 103° F. and swelling of the right lower extremity were noted and the patient was given 300,000 units of penicillin daily for a total of five days. The temperature presumably returned to normal a week after operation. The patient was sent home by ambulance with instructions to take 4,000 units of penicillin per day by mouth. On March 14 the temperature rose to 103.6° F., and there were associated chills and drainage from the incision in the right groin. The latter symptoms persisted up to the time of hospital entry.

The only relevant past history concerned a peptic ulcer for which the patient had been hospitalized both in 1926 and 1927.

Upon physical examination, significant findings were confined to the right lower extremity. Serosanguineous material could be expressed from the right groin wound, which was open for a distance of one cetimeter. The right calf and thigh were approximately five centimeters larger in circumference than the left. Arterial pulsations were good, and equal bilaterally. Homans' dorsiflexion sign was not present and there was no demonstrable tenderness in the calf. The femoral vein was tender from the adductor canal to the groin. The superficial veins were not distended although the right internal saphenous vein was thrombosed at the knee level. Both feet were equally warm and no cyanosis was present.

Hemoglobin was 11.3 gm. per 100 cc. of blood. Leukocytes numbered 9,500 with 89 per cent polymorphonuclear cells. Blood cultures taken with penicillinase were positive for Staphylococcus which was variable in pigment production from albus to aureus. The organism produced moderate hemolysis on a blood-agar plate and was strongly coagulase-positive. A penicillin sensitivity determination showed the organism had attained resistance such that 2.5 units of penicillin per cubic centimeter of body fluid was required to inhibit growth.

On the premise that an approximate concentration of one unit of penicillin per cubic centimeter of body fluid can be maintained by the daily administration of 1,000,000 units of penicillin given intramuscularly, the patient was given 200,000 units every two hours. Sulfadiazine also was given: after an initial dose of 4 gm., one gm. was given every four hours with alkalies. The level of the sulfa drug in the blood was kept at 8+ mg. per 100 cc. The fever continued, with chills which could well have resulted from septic emboli emanating either from the groin focus or from a propagating thrombus extending above this level. Full-blown, deep thrombophlebitis was noted March 22, and there was beginning evidence of pathologic change at the base of the right lung. X-ray films of the chest were made, but it could not be determined whether the cause was passive congestion, pneumonitis, or pulmonary infarction. The patient was given digitalis and 500 cc. of whole blood. Transfusion of the same amount was repeated on two subsequent occasions.

Iliac or even caval ligation was considered but decided against because it was felt that the proximal progression of the venous disease and an undoubtedly associated inflammatory reaction involving the contiguous tissues would make any extensive operation technically difficult, if not formidable, in such an acutely ill patient.

The organism was found to be resistant to all available bacteriophages. Anticoagulants were not used because of the ease with which the groin wound bled. Under the intensive regimen outlined, the temperature returned to normal on April 6. However, there was a reluctance to discontinue the medication because the infecting organisms were still present in the groin wound. On April 17, under local anesthesia, the right groin wound was explored. A moderate amount of heavy chromic catgut and purulent material was removed and all sinus tracts were converted into a large single opening. Some bleeding was encountered but it was quite easily controlled by pressure. Response to the operation was satisfactory and no exacerbations were noted.

In view of continued normal temperature, progressive clearing of the lung congestion, and a recession of the swelling of the right lower extremity, penicillin was discontinued on April 23. The patient remained afebrile and the sulfadiazine was discontinued on April 30. The subsequent course was uneventful and the patient was discharged from the hospital May 4 with minimal drainage from the right groin wound.

The drainage progressively diminished and the wound was healed on June 6. Since that time an elastic stocking has been worn on the right leg and the patient is currently active and asymptomatic although there is slight swelling in the right calf and thigh. There are varices in the right lower extremity which can be attributed to an initially inadequate high saphenous resection, to the incompetence of communicating veins between the superficial and the deep system, and to the development of compensatory collateral veins as a result of the deep venous obstruction. Obviously, further treatment of the pathologic changes in the superficial veins is contraindicated because of the postoperative, deep thrombophlebitis.

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Interauricular Septal Defect

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CASES of congenital heart disease must now be evaluated for operative correction. The exact diagnosis of each anomaly therefore has new importance. The case to be presented is of interest because of the age attained by a patient with an uncommon type of hiatus in the interauricular septum, and because it illustrates the diagnostic importance of the timing of murmurs.

CASE REPORT

First Admission: March 28 to April 6, 1944. A 66-year-old widowed Mexican domestic worker entered the San Francisco Hospital complaining of chest pain for one day. She had had scarlet fever at the age of 15, and since then had been aware of some heart trouble, although the only symptom was mild palpitation. Previous to the present illness, there had never been shortnss of breath, chest pain, cough, asthma, or ankle edema. The patient had never been pregnant. Until the present illness she had worked as a hotel dishwasher.

Physical Examination: The blood pressure in both arms was 140 mm. of mercury systolic and 65 mm. diastolic. Inspection of the thorax showed a visible pulsation in the left second interspace; a thrill was palpable at this point. The point of maximum impulse was in the sixth interspace almost at the anterior axillary line. The area of cardiac dullness was enlarged 3 cm. to the right of the midsternal line in the fourth and fifth interspaces, and to the left of the midsternal line 6.5 cm. in the third, 8 cm. in the fourth, and 12 cm. in the fifth interspace. The pulse rate was 80 per minute with regular sinus rhythm. A Grade 3 blowing apical systolic murmur was transmitted to the axilla. The pulmonary second sound was prominent and many times louder than the aortic second sound. A loud, harsh, systolic murmur with accentuation in early systole in the left second interspace was widely transmitted in all directions; diastolic murmurs were absent. None of the organs in the abdomen were palpable. No clubbing or edema was noted in the extremities. The neck veins were not distended. The hemoglobin value was 96 per cent; leukocytes numbered 6,100 per cu. mm.

X-Ray Examination with Fluoroscopy (Figure 1): The cardiac shadow was enlarged both to the right and left; the thoracic diameter was 21 cm. and the transverse cardiac diameter 15 cm. The pulmonary artery was greatly enlarged and pulsated vigorously. The aorta was small in relation to the other great vessels.

Electrocardiogram (Figure 2): Regular sinus rhythm, with broad notched P waves of slightly variable contour suggesting a wandering S-A pacemaker. The P-R interval was 0.16 second, the QRS interval 0.16 second. S_1 was wide, deep, and notched. Conclusion: Right bundle branch block.

Hospital Course: A diagnosis of bronchopneumonia was made. Despite diffuse bronchopneumonia with consolidation in both lower lobes, there was no cyanosis. The patient was treated with sulfonamides and discharged on the ninth hospital day.

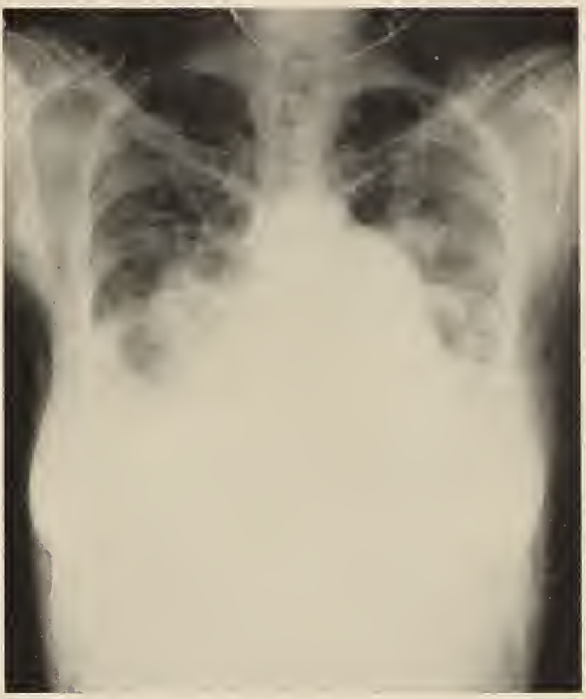

Figure 1.—X-ray showing the enlarged heart with the dilated pulmonary artery and the extent of the bronchopneumonia.

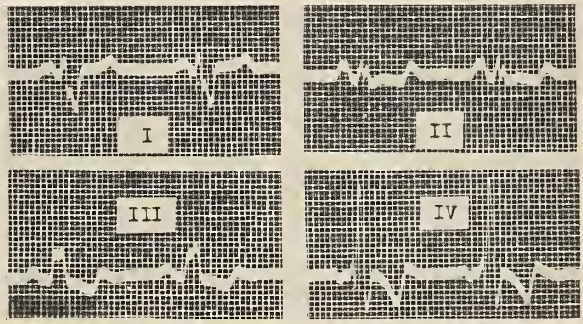

Figure 2.—Electrocardiogram showing the broad, notched P waves and right bundle branch block.

Second Admission: March 30, 1947. Since recovering from pneumonia in 1944, the patient had had mild dyspnea on climbing stairs and occasional orthopnea, but had not limited her activities. The day before entry there was sudden onset of chills, fever, cough, and hemoptysis. At the time of admission the temperature was 103° F. The pulse was regular, the rate 90 per minute. Respirations were 40 per minute. The blood pressure was 112 mm. of mercury systolic and 56 mm. diastolic. There were signs of consolidation in the left upper lung field and diffuse pulmonary edema. Leukocytes numbered 1,450 per cu. mm. with normal distribution. X-ray examination of the chest showed consolidation in the left upper lung field; the thoracic diameter was 22 cm. and the transverse cardiac diameter 17.5 cm. A diagnosis of lobar pneumonia was made, and the patient died seven hours after entry.

Clinical Diagnosis: 1. Left upper lobe pneumonia. 2. Congenital heart disease, with patent ductus arteriosus and probable interventricular septal defect.

Autopsy: The heart (Figure 3) weighed 460 grams. On the epicardium were fresh deposits of fibrin. The musculature was deep red, firm in consistency, and showed no fibrosis, infarction, or scarring. The heart was globular and the right ventricle was dilated. The pulmonary artery was prominent, dilated, thin-walled, and measured 6 cm. in diameter at a point 3 cm. above the ring of the pulmonary valve. The aorta at the same level measured 2.5 cm. in

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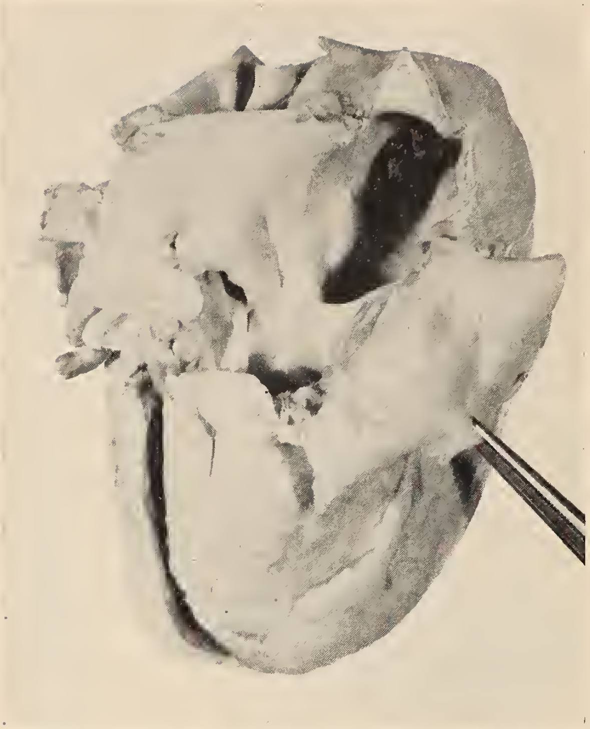

Figure 3.—The left auricle has been opened to show the interauricular septal hiatus.

diameter. There was no communication between the pulmonary artery and the aorta. The left auricle was grossly normal, while the right auricle was widely dilated with the wall trabeculated, paper-thin, and translucent. The interauricular septum was a ridge 18 mm. high and 4 mm. in thickness arising between the tricuspid and mitral valves. The anterior portion of the interauricular septum was represented by a low ridge-like thickening of the auricular wall which was more prominent superiorly and lay immediately to the left of the superior vena cava orifice. The interauricular defect thus produced measured 3 by 4.5 cm., and the heart therefore had essentially only a single auricle. The coronary sinus orifice, guarded by a single Thebesian valve leaflet, lay in the floor of the right auricle in the corner formed by the posterior wall and the interauricular septum. The right ventricular wall was considerably thickened, measuring 13 mm. near the valve ring and 4 mm. at the apex, while the left ventricular wall was 15 mm. thick near the valve ring and 9 mm. at the apex. The interventricular septum was intact, and the membranous portion of the usual size and thickness. The leaflets of the aortic valve were thin but fused at the commissures to a very slight degree. There was a small amount of fibrous thickening of the aortic valve ring. On the aortic surface of the anterior mitral leaflet were a few low atherosclerotic plaques, and some of the chordae tendinae were moderately thickened and short. At the free edge the leaflet was slightly thickened and nodular. In order that the specimen might be preserved for demonstration the tricuspid valve was not opened, but it was grossly normal. Circumferences of the valves were as follows: mitral, 8 cm.; aortic, 6 cm.; pulmonary, 8 cm. The coronary arteries were widely patent, although the walls showed slight atherosclerosis. The left upper lobe of the lung was consolidated with pneumonia in the stage of red hepatization.

Anatomical Diagnosis: (1) Interauricular septal defect. (2) Dilatation of right auricle. (3) Aneurysmal dilatation of pulmonary artery. (4) Right ventricular hypertrophy. (5) Lobar pneumonia.

DISCUSSION

The patient had been considered clinically to have a patent ductus arteriosus and an interventricular septal defect. This error might not have been made had there been a full appreciation of the significance of the timing of the murmurs. The absence of a diastolic murmur was confirmed by the phonocardiogram (Figure 4), which showed the murmur to be totally systolic, with accentuation in early

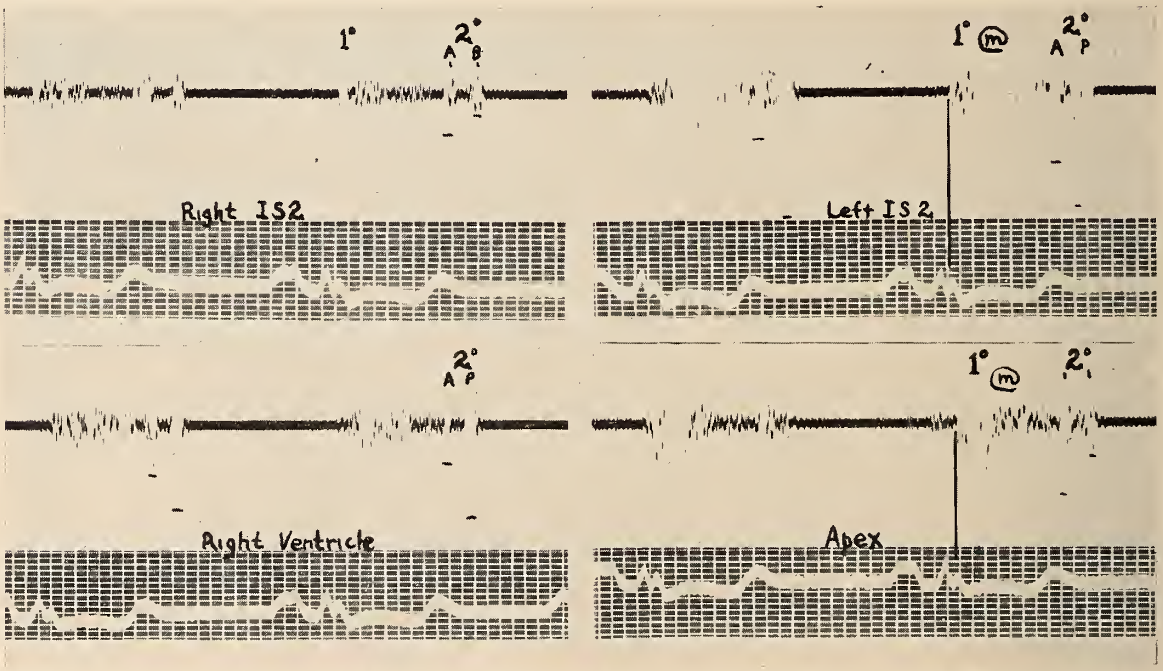

Figure 4.—Phonocardiogram showing the loud murmur with early systolic accentuation in the left second interspace.

systole. This is quite unlike the continuous murmur characteristic of patent ductus arteriosus (Figure 5), in which the accentuation occurs late in systole or early in diastole, and the second sound does not mark any abrupt change in the intensity or quality of the murmur.[5, 6] It is recognized that the diastolic component of the murmur of patent ductus arteriosus is not always audible. However, murmurs of marked intensity tend to be characteristic. The murmur of patent ductus arteriosus is accentuated in late systole or early diastole because the ductus lies at a distance from the heart and the flow of blood from the aorta to the pulmonary artery is delayed in relation to the heart cycle;[5] the absence of abrupt change at the time of the second sound shows it to be relatively independent of the position of the heart valves. In the case reported, the intensity of the murmur with early rather than late systolic accentuation, and its abrupt cessation with the second sound, place the murmur within the heart or at the origin of the great vessels and within systole.

The loud murmur and thrill were probably caused by the associated pulmonary artery dilatation rather than the interauricular septal defect. Large defects characteristically do not cause prominent murmurs. Pulmonary artery dilatation, however, interferes with the streamlining of the right ventricular outflow channel. It, like right ventricular hypertrophy and right auricular dilatation, is secondary to the marked increase in pulmonary circulation consequent to the blood flow from the left to right auricles. This direction of blood flow is caused both by the higher pressure in the left auricle and by the effect of gravity; the right auricle lies below the left.[8, 9]

Several of the signs demonstrated in this case were consistent with either interauricular septal defect or patent ductus arteriosus. The patient survived many more years than the average patient with either condition; cyanosis was absent; and dilatation of the pulmonary artery and its branches was demonstrated by fluoroscopy. Right ventricular hypertrophy, ordinary demonstrable by the electrocardiogram in the presence of auricular septal defect, was obscured by the right bundle branch block. Although right bundle branch block was present in 5 of 53 cases of septal defect reported by Bedford and co-workers,[2] its presence in a 66-year-old patient contributed nothing to this differential

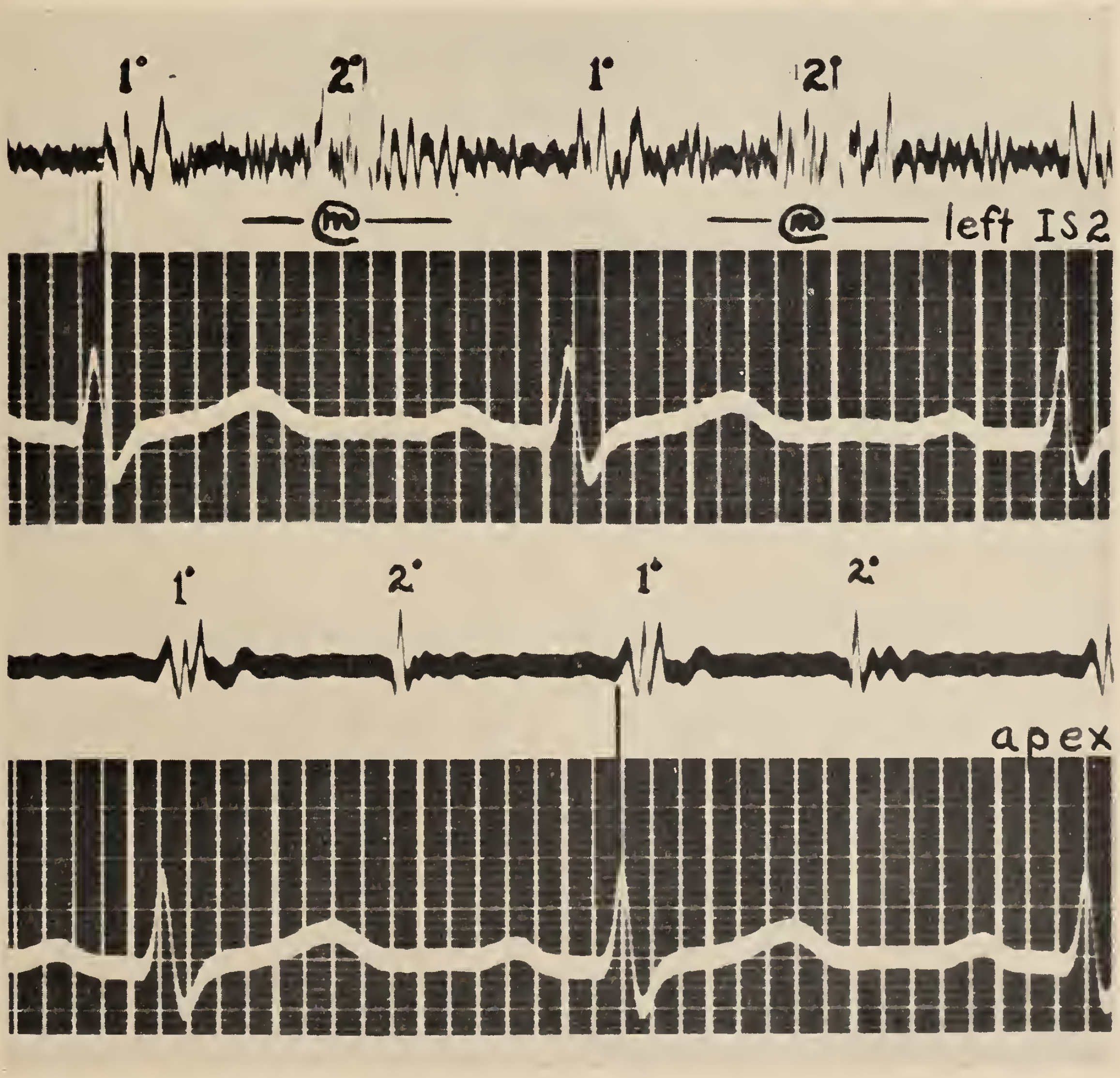

Figure 5.—Phonocardiogram of a 7-year-old child with a patent ductus arteriosus. The continuous murmur is accentuated in late systole and early diastole.

diagnosis. The enlargement of the right auricle was not noted by the fluoroscopist, and the diagnosis was therefore contingent upon the auscultatory signs.

Because it is often difficult or impossible to determine the exact malformation or embryonic growth arrest which causes large interatrial defects, Burrett and White[3] have suggested that a simple descriptive classification be used. In the case reported herein, the defect was so extensive that the interauricular septum was represented inferiorly only by an 18 mm. ridge of tissue, and anteriorly by a thickening of the auricular wall. The origin of this defect can only be suggested. The endocardial cushions were fused and the atrioventricular valves well-formed, as was the septum intermedium. The heart resembled very closely that described in Case 10 in the series of Bedford and co-workers,[2] in which the almost complete absence of the septum was considered to be due to an arrest in the early stage of formation of Septum I. While this is the most likely explanation for the defect found in the case reported herein, the complete absence of septum in the roof of the auricles suggests the possibility of a wide foramen secundum with an arrest in an early stage of formation of Septum II.[4]

A widely patent interauricular septum generally causes marked limitation of the life span. In Bedford's Case 10 the patient was a female who died at the age of 33 during a surgical operation. In Abbott's[1] series of 1,000 congenital cardiovascular anomalies, defects in the superior portion of the auricular septum occurred 19 times; the average duration of life was 34 years, the maximum being 64 years. In 62 cases of auricular septal defects of all types larger than 1 cm., Roesler[7] reported the average duration of life to be 36 years, including one 75-year survival. Burrett and White,[3] reviewing 31 cases from Roesler's report to 1945, reported a 68-year survival and added that 54 per cent of patients with interatrial defects survived more than 40 years. The majority of the reported cases are those of varying degree of malformation and patency of the foramen ovale.

The 68-year survival of this patient with an almost complete absence of the interauricular septum is rare. This case is further remarkable in that the patient was able to work as a dishwasher until the age of 66, and even diffuse bronchopneumonia at that time did not cause cyanosis. Despite the greatly enlarged heart, the patient survived 68 years without congestive heart failure.

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Leukemoid Reactions in Carcinomas

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THERE are two recognized types of leukemoid reactions. In one type the total number of leukocytes is normal or only slightly increased but there are large numbers of immature cells (myelocytes and myeloblasts). The second variety is characterized by very high leukocyte counts with very few, if any, immature blood cells. Evidence of true leukemia consistently is lacking in the bone marrow of patients with leukemoid responses.

A variety of conditions, including many infectious diseases, septicemias, mustard gas poisonings, tuberculosis, myelomas, and malignant tumors are known to be possible causes of these abnormal leukocyte responses.[2] Leukemoid reactions have been reported from the use of various sulfonamide drugs.[1, 6] Weiss and Haines[5] cited a case of severe leukemoid response (132,000 leukocytes) which appeared two weeks after extensive body burns. The patient died and the autopsy findings did not support a diagnosis of true leukemia.

High leukemoid response in association with carcinomas is rare. In 1929 Sonnenfeld[4] collected reports of 12 such cases from the literature and added two of his own. The leukocyte counts in these cases ranged from 15,000 to 140,000, while the percentage of immature cells varied from a few up to 30 per cent (myelocytes). Meyer and Rotter[3] in 1942 reported two cases of carcinoma of the stomach with high leukocyte responses—one with 110,000 cells and the other with 128,000. There were very few immature forms present in these two instances. No evidence of metastasis to the bones was noted by these observers. The types of carcinoma which most frequently are associated with leukemoid reactions are carcinomas arising from the stomach, breast, and liver.

CASE REPORT

The patient, a white woman 79 years of age, was admitted to the Glendale Sanitarium and Hospital on November 11, 1947, with complaints of pain in the left lower chest, moderate hemoptysis, dyspnea, and weakness, of six months' duration. Previously she was apparently well. During the two months prior to entry the patient had been noted to be progressively losing weight and strength. There were no symptoms of disease in the gastrointestinal or genito-urinary systems. No past history of tuberculosis could be found. A diagnosis of arteriosclerotic heart disease and of possible carcinoma of the lung had been made elsewhere.

The patient appeared well-developed but poorly nourished, and required repeated administration of codeine for relief of pain. The skin was warm and dry. The temperature was 100° F. (oral) and the radial pulse rate was 110 and regular. The eyes, ears, nose and throat were normal. No lymph nodes could be palpated in the neck or in the supraclavicular areas; no thyroid enlargement was noted. The breasts were small and no masses were felt. There was dullness and decreased breath sounds over the left lung apex. No rales were heard. The apex impulse of the heart was in the anterior axillary line in the fifth interspace. No murmurs were heard. A faint, rather harsh, systolic sound (thought to be a friction rub) was heard over the apex of the heart. The blood pressure was 130 mm. of mercury systolic and 90 mm. diastolic. The liver and spleen were not palpable and no abdominal masses nor tenderness were noted. No edema nor deformity of the extremities was present. The reflexes were normal.

From the Department of Internal Medicine of the College of Medical Evangelists, Los Angeles, and the Glendale Sanitarium and Hospital, Glendale.

Reports from an outside laboratory, dated November 19, 1947, showed hemoglobin of 11.2 gm. per 100 cc. Erythrocytes numbered 3.5 million and the color index was 0.93. Leukocytes numbered 101,500, with neutrophils 99 per cent (myelocytes 1, juveniles 4, stabs 29) and monocytes 1 per cent.

The urine, examined at the time of admission to hospital, was normal. Two sputum examinations for tubercle bacilli were negative. Hemoglobin was 10.6 gm. per 100 cc. Leukocytes numbered 112,500, with neutrophils 96 per cent (stabs 46, juveniles 2, premyelocyte 1), lymphocytes 2 per cent, and monocytes 2 per cent.

A roentgenogram of the chest showed a homogenous density occupying the left apex, suggesting atelectasis of the left upper lobe. A sternal marrow study was suggested, but was refused by the patient.

The clinical diagnosis was: (1) Probable bronchogenic carcinoma; (2) severe leukemoid reaction.

The patient became progressively weaker; numerous ventricular premature beats were noted; the precordial friction rub persisted. Leukocytes numbered 144,000, the differential being the same as before. On December 8, 1947, the patient died.

At autopsy numerous glistening pink fibrous adhesions were found between the heart and pericardium. The heart chambers were not dilated and the valves were normal in appearance. Mild atherosclerotic changes were present in the coronary arteries, but there was no narrowing nor occlusion. There was no evidence of old or recent myocardial infarction. A large infiltrating tumor occupied the upper lobe of the left lung. This tumor apparently originated in the neighboring secondary bronchus. The spleen was about two and one-half times normal size; the cut surface was not unusual. The lymph nodes generally, including those of the mediastinum, were not enlarged. A small firm white tumor (1.5 cm. in diameter) was present in the upper portion of the right adrenal gland. The first and second thoracic vertebrae were extensively infiltrated by tumor. The lower thoracic vertebrae were grossly normal. No abnormalities were noted in the gastrointestinal, hepatic, or genito-urinary systems.

The microscopic appearance of the tumor mass and adjacent bronchus was characteristic of squamous cell carcinoma, grade II. Chronic atelectasis with moderate acute inflammatory reaction was also present. The pulp of the spleen was almost entirely replaced by necrotic polynuclear leukocytes. A section of the tumor in the adrenal gland showed squamous cell carcinoma of the same type as found in the lung. There was no evidence of metastatic tumor or of leukemic infiltration in the liver. There was definite hyperplasia, chiefly polynuclear, of the bone marrow. Some areas were observed to be invaded by tumor cells of the type in the lung tumor.

The pathological diagnosis was: (1) Squamous cell carcinoma, grade II, of the upper left bronchus. (2) Metastatic carcinoma of right adrenal gland and of bone. (3) Leukemoid reaction.

COMMENT

In this case the leukemoid response was of the kind characterized by a great increase in leukocytes rather than the kind typified by an appearance of immature forms in the blood. In this instance pulmonary tuberculosis had to be considered in the differential diagnosis because the pulmonary lesion was apical and because of reports that very severe leukemoid response is sometimes noted in patients with tuberculosis.

SUMMARY

Severe leukemoid reactions occasionally occur in patients with various types of carcinoma. In the case reported, the patient had an exaggerated leukemoid response in association with a carcinoma of the bronchus, with metastases to the adrenal gland and bones.

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Delayed Traumatic Rupture of the Spleen

Report of Two Cases

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Traumatic rupture of the spleen is usually the result of direct or indirect injury to the upper abdominal region such as may occur in automobile accidents, falls, or blows. Such ruptures may be either immediate or delayed.

Immediate rupture appears within a short time after the injury and the picture presented is that of an abdominal emergency with severe pain, tenderness, and some rigidity in the epigastrium. In some cases there is shock or impending shock due either to the severity of the trauma or to extensive internal bleeding. Bleeding is evidenced by a fall in the erythrocyte count, a rise in leukocytes, pallor, weakness and local signs of intra-abdominal irritation. Frequently there is hypersensitivity to palpation and a very definite rebound tenderness. These symptoms, however, do not usually appear for a few hours after trauma. Rigidity or muscle spasm in the epigastrium may occur at once or later. In immediate rupture there is an injury to the splenic pulp with tearing of the capsule, allowing blood to escape into the abdominal cavity. The degree of shock present depends on the amount of blood that is spilled out of the spleen and the severity of the original injury.

Delayed rupture may occur at any time after the first 48 hours. It is most frequent between the second and 16th day, although there have been cases reported in which the period of delay was as long as two years. In the two cases reported herein it occurred on the 35th day and the tenth day after the original accident. It is usually due to a subcapsular hematoma which eventually breaks through the capsule, causing leakage of blood into the peritoneal cavity. In delayed rupture the most common picture is as follows: Immediately following the accident there may or may not be signs pointing to a splenic injury. If such signs are present, there may follow a period in which symptoms seem to disappear or at least to diminish. Delayed rupture then causes sudden acute epigastric pain, tenderness, and muscle spasm in the left hypochondrium, fairly pronounced anemia and leukocytosis. Pain in the left shoulder is also present quite often. Fluoroscopic examination may reveal limitation of excursion of the left diaphragm; and if a little barium is administered, it may be possible to elicit evidence of outside pressure on the stomach. The delayed rupture may occur spontaneously or it may be found to appear after sneezing, coughing, straining at stools, or similar exertions. Also in a fair number of cases onset will not be sudden, but gradual.

Case 1: A white female, 31 years of age, was admitted to the hospital approximately 16 hours after an automobile accident. She had been asleep in the front seat of a car driven by her husband when it struck a telephone pole and she was thrown against the dashboard, injuring the left side of her chest and forehead. As emergency treatment at another hospital, the patient had been given Pantopon® (20 mg.), sodium phenobarbital (0.3 gm.) and tetanus antitoxin, and lacerations had been sutured. Only a minor degree of shock was reported. At the time of admission to the second hospital, the patient was moderately pale and the chief complaint was of pain in the left chest and knee. There was no evidence of shock. The blood pressure was 130 mm. of mercury systolic and 68 mm. diastolic, the pulse rate 100 and respirations 20 per minute. There was pain in the chest on moderately deep inspiration. Tenderness in the epigastrium upon pressure was noted, with very slight rebound tenderness extending down to the umbilicus. The abdomen was symmetrical and soft; the liver, spleen and kidneys were not palpable. On questioning, the patient stated that there was a slight pain in the left shoulder. The extremities were normal except for swelling and lacerations of the left knee. The reflexes were normal. X-ray films of the nose, ribs and both knees revealed only an old comminuted fracture of the nasal bones (treated two weeks previously at the same hospital). Urinalysis showed a slight trace of albuminuria, and one to 2 erythrocytes per high power field. Examination of the blood showed hemoglobin of 8.16 gm. per 100 cc. Erythrocytes numbered 2,440,000, and leukocytes 9,300 with normal distribution. The coagulation time was 6 minutes and 30 seconds. Result of a Wassermann test was negative.

At this time the possibility of ruptured spleen was strongly considered. However, since 16 hours had elapsed since the accident and there was no evidence of impending shock, and also because the abdominal signs and symptoms were not pronounced, it was decided that the patient should be kept under observation. Supportive measures were accordingly carried out and the patient was examined at frequent intervals. The abdominal signs gradually diminished and by the third day had disappeared. On the seventh day erythrocytes numbered 3,860,000 and leukocytes 15,400 with 79 per cent neutrophils. The temperature range was between 99° and 101° F. The patient's chief complaint still was of pain in the left chest, but no abnormality was found there in frequent physical examinations. On the tenth day, however, an x-ray film of the chest showed some fluid in the left pleural cavity and left basal atelectasis. As by this time the patient was improved enough to be allowed out of bed, the effusion was believed to be the major cause of the preexisting symptoms. On the 15th day a slight increase in the effusion was noted and thoracentesis was carried out. Relief was experienced after the withdrawal of about 100 cc. of bloody fluid. The temperature reached and stayed at a normal level. The patient was discharged on the 18th day. On dismissal there was still slight pain in the left chest. Examination of the blood at that time showed hemoglobin of 12.2 gm. per 100 cc., erythrocytes numbering 3,890,000 and leukocytes 11,300 with 83 per cent neutrophils.

X-ray films a week later showed the left chest to be almost clear. The patient felt well and was able to carry on most of her household duties. On the 35th day after the accident, while sitting in a chair following a small lunch, the patient again experienced a fairly severe pain in the left lower chest and left hypochondrium.

Upon examination at the time of readmission, the abdomen was found to be soft and symmetrical. There was moderate tenderness in the left hypochondrium, no shifting dullness. Upon questioning, the patient stated that there was a slight ache in the left shoulder. Examination of the blood showed hemoglobin of 10.9 gm. per 100 cc., erythrocytes numbering 2,870,000 and leukocytes 7,600 with 82 per cent neutrophils.

No effusion was visible in x-ray films of the chest but there was slight elevation of the left dome of the diaphragm. A blood transfusion improved the blood picture. For the next two days with the patient under close observation little change in the clinical picture was noted.

On the 38th day fluoroscopic examination revealed limitation of excursion of both domes of the diaphragm, more pronounced on the left. Following ingestion of a small amount of barium, the stomach was thought to be pushed slightly to the right. Diagnosis of rupture of the spleen was then made and an exploratory laparotomy was carried out. Free blood was found on opening of the peritoneum; and a large subdiaphragmatic hematoma was present, extending into the gastrocolic ligament and firmly attached to the anterior surface of the spleen. The hematoma and spleen were also adherent to the left dome of the diaphragm. Splenectomy was then carried out. An attempt was made to inspect the diaphragm for any laceration, but as it was covered with a partly organized clot, visualization was imperfect. The patient received 500 cc. of whole blood, 500 cc. of plasma, and 1,000 cc. of normal saline on the operating table and was taken from the operating room in good condition.

Examination of the removed spleen revealed a large subcapsular hematoma which had completely dissected the capsule from the pulp on the superior surface of the spleen and had ruptured through the capsule at the border.

Another whole blood transfusion was given the same day, and two more within the next week. Penicillin, 30,000 units every three hours, was started on the first postoperative day. That evening the temperature arose to 104.8° F., but 12 hours later it was down to 100° F. and it continued a gradual decline until it was normal on the fifth postoperative day. The patient was allowed out of bed on the sixth postoperative day, and the penicillin was discontinued. On the next day the temperature began to rise again and the penicillin was again administered without reduction of the fever, which rose to 103° F. No evidence of wound infection was found. On the 13th day penicillin was discontinued and the fever began subsiding, until it reached and stayed at a normal level on the 16th day. On the seventh postoperative day there was slight pleural effusion; it had diminished by the 11th day. The patient was discharged ambulatory on the 18th day postoperative, and at this time the hemoglobin was 11.28 gm. per 100 cc., erythrocytes numbered 4,690,000 and leukocytes 17,050 with 85 per cent neutrophils. The patient was observed several times later and found to be perfectly well.

Case 2: A 27-year-old white farmer received an injury to the left lower chest on February 21, 1948, when he was run over by the rubber wheel of a tractor. He was shaken up at the time, but there was no evidence of severe injury. The next day there was severe pain in the left upper quadrant of the abdomen, radiating to the left shoulder. At this time he was, he said, given a "shot," after which the pain stopped for about one week, during which slight soreness in the left upper quadrant was the only complaint. On March 1, 1948, the patient again tried to run a tractor, but had to give up because of severe pain in the epigastrium and left shoulder, and nausea and slight fever. He again consulted a physician, was given a "shot" and was transferred to the hospital.

On arrival the patient appeared to be somewhat distressed and rather restless, but he did not complain of severe pain, probably because of morphine given prior to transfer. He turned from side to side with difficulty and preferred to sit up in bed as that was more comfortable. Blood pressure was 110 mm. of mercury systolic and 90 diastolic. The pulse rate was 90. The abdomen was tender even to gentle palpation, particularly in the left upper quadrant. There was rebound tenderness, muscle guarding and some rigidity in the epigastrium. No masses were felt. Peristalsis was active. Liver, kidneys or spleen could not be palpated.

The urine was normal. Examination of the blood showed a hemoglobin value of 78 per cent. Erythrocytes numbered 4,400,000 and leukocytes 11,200 with 78 per cent neutrophils and 21 per cent lymphocytes. Examination of a specimen of blood taken eight hours later showed a hemoglobin value of 62 per cent, erythrocytes numbering 3,540,000 and leukocytes 14,700 with neutrophils 83 per cent and lymphocytes 17 per cent.

An x-ray film of the abdomen showed a somewhat unusual homogeneity of the left upper quadrant shadows. The splenic outline could not be seen and the fundus of the stomach appeared displaced a little toward the midline. There was no elevation of either hemidiaphragm and no free air beneath either dome.

A diagnosis of delayed traumatic rupture of the spleen was made. Laparotomy and splenectomy were then performed through a left subcostal incision. The spleen contained a hematoma 8 cm. in diameter on the superior surface with a T-shaped laceration. Except for hemorrhage, no microscopic abnormalities were found.

The postoperative course was uneventful, fever reaching 102° F. on the third day with gradual decline to normal. The patient was discharged, walking, on the seventh day.

DISCUSSION

These two cases present a fairly typical picture of delayed traumatic rupture of the spleen. In both there was abdominal pain after injury, followed by a latent period with only minor symptoms and finally the acute onset of pain in the epigastrium which indicated the rupture. Both patients complained of pain in the left shoulder. Tenderness and muscle spasm were present. The erythrocyte count was decreased and the leukocyte count elevated. The diagnosis was not too difficult in either case. However, the clinical picture in the first case immediately after the accident is worthy of discussion. In retrospect, there was definite evidence of splenic trauma at the time of admission, as evidenced by the abdominal and left shoulder pain and the abnormalities in blood cell count. To mask the picture there were the many other contusions and the main complaint of pain in the left chest, with the development of hemothorax after a few days. The hemothorax was probably caused by leakage of blood through a small diaphragmatic tear rather than by pleural or pulmonary injury.

In the surgical literature of the past five years there are surprisingly few articles dealing with injuries to the spleen. Yet this is admittedly not an uncommon abdominal emergency, and one that should always be remembered by the surgeon. It is possible that rupture of the spleen will be more common during the next few years, because of the number of war veterans who may have splenic disease secondary to malaria and other tropical diseases. For this reason it will be necessary to keep this possibility in mind when examining a patient who has even slight abdominal symptoms and signs following some of the commoner injuries and accidents.

The author is of the opinion, after studying these cases, that any patient who, following an injury, has such symptoms as abdominal pain and tenderness, pain in shoulder, and fall in erythrocyte count with an increase in leukocytes, should be observed very carefully. If there is any doubt as to the diagnosis, an exploratory operation is probably the safest procedure. The postoperative course in the first of the two cases reported probably would have been much less stormy if laparotomy and splenectomy had been carried out within the first few days after the injury.

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EDITORIALS

Lobbies and Pockets

Governor Warren has recently sounded off publicly against "lobbies" as inimical to good state government. Governor Warren has also recently exercised his power of pocket veto on a series of legislative bills which had been approved by both houses of the Legislature.

Out of these two facts emerges an interesting situation which we believe should have widespread public attention and a large measure of scrutiny.

The bills we refer to are a series of measures designed to tighten up the Medical Practice Act, to define the practice of medicine with more exactitude and to assure the possibility of punishment for those who step across the threshold of lay life into the more scientific realms of medical practice.

These bills would have (1) redefined the practice of medicine unqualifiedly to include the treatment of mental and nervous disorders as well as physical conditions; (2) tightened up the definition of "diagnosis"; (3) increased penalties for violation of the Medical Practice Act; (4) clamped down on the use of advertising; (5) increased the penalty for practicing medicine while intoxicated; (6) permitted the employment of physicians by bona fide charitable medical institutions; (7) clarified and streamlined present provisions of the Medical Practice Act dealing with unprofessional conduct.

These are the bills which Governor Warren killed by his pocket veto. They were prepared by representatives of three recognized groups—members of the Board of Medical Examiners, representatives of the deans of the medical schools in California, and representatives of the California Medical Association. All of them were given close scrutiny by both houses of the Legislature and in some instances they were amended to conform with suggestions by members of the Legislature. All of them were passed by the Assembly and the Senate *without one adverse bit of testimony or one opposition witness* before the regularly constituted committees of both houses.

The Governor's veto was applied in his own office, after representatives of departments of the state government and several others, principally professors, had made opposition statements regarding the effect of the measures. At least, that is the case as stated by the Governor's own office in letters which gave his reasons for his pocket vetos on two of the bills.

In view of the manner in which these bills were killed, we wonder if Governor Warren is actually sincere in his public attacks on "lobbyists." We wonder if the power of certain state officials, in reaching into the corner office in private after the Legislature has had measures before it, *in public*, for six months, is not in fact greater than any power exercised by industry and labor representatives who plead their cases before the Legislature. We wonder who evolved the definition of "lobbyist" which the Governor is apparently using.

The State Constitution declares "lobbying" to be a felony and defines some of the practices which constitute felonious actions. The courts of the state have interpreted this constitutional provision to permit the employment of representatives who, by acting openly, present a point of view on proposed legislation before public and properly constituted legislative bodies. However, the courts have made plain that petitioning the state government through representatives must be practiced in public and by persuasion, not by intimidation, threats or other methods proscribed in the Constitution.

It is interesting to note that the series of medical practice bills vetoed by Governor Warren was before the Legislature, in the open, for six months. During that time none of the state department heads or professors appeared *in public* to oppose these measures. Their opposition was voiced, so it would seem from the Governor's letters, in the privacy of his own office.

The net result of this procedure is that a series of sound legislative measures designed to protect the public health has been jettisoned. The effect of this action on the health of the public cannot possibly be good.

Behind this entire matter is the question of the propriety of the representations made to and accepted by Governor Warren. We doubt the wisdom of accepting arguments in private which have been withheld in public. If the special pleaders whose voices found the Governor's ear claimed that their notice had been called to these bills too late to make public appearances before legislative committees, we believe the least the Governor might have done was to call in the proponents of the bills in order to get both sides of any argument.

We wonder if possibly the Governor's definition of "lobbyist" might not stand some broadening to include those who practice their arts in star chamber sessions and avoid the public glare.

Life Insurance Examiner Fees

Life insurance underwriting, one of the original business enterprises established in this country in colonizing days, has today grown into one of the largest financial giants in our modern business world. One insurance company advertises itself as the "largest financial institution in the world" and many others proudly present their balance sheets by way of institutional advertising, playing up in bold type their "admitted assets." On inspection, these figures prove to be well worth advertising.

The growth of this business has resulted from a number of factors, among them the desire of Americans to provide a measure of financial security for themselves and those they leave behind, aggressive sales promotion, the savings instinct and other considerations. All in all, these factors add up to the investment each year of hundreds of millions of dollars by the American people in life insurance contracts.

Along with this growth has come the development of a semi-exact science, that of the actuary. This mathematical prodigy is an individual who can calculate to any number of decimal points the chances the underwriter is taking in issuing a new contract of life insurance. His chief calculating factors are the mortality and morbidity figures provided by health departments and used by the insurance industry as a measure of the public health and of the chances of survival or life expectancy of males and females in various walks of business and domestic life.

Behind these figures, and indeed responsible for their constant improvement (to the financial gain of the insurance underwriters) *is the physician who examines the patient* before the insurance contract is issued. The underwriter relies on the word of the doctor as to the insurability of the prospective policyholder. The answers given by the examining doctor are set alongside the mathematical calculations of the actuary and the policy is issued or declined on the basis of this comparison. A good risk is insured, a poor risk declined or "written up" at an increase in premium.

With the doctor occupying such a strategic position in so gigantic a financial venture, it might be assumed that the life insurance underwriters would value his services highly. Instead, the underwriters solicit the services of the doctors for their examinations at a flat fee, generally five dollars, regardless of the exacting requirements of making and reporting the examination or the complexities of any individual examination. This same fee has been standard for fifty years or more!

Within the past few years the American Medical Association and some state medical associations, notably in New Jersey, have taken steps to have this examination fee reviewed with the thought of an upward adjustment. It is sad to report that these efforts have been, until recently, entirely fruitless. The insurance associations have consistently passed the buck to the individual underwriters. The individual underwriters have taken the stand that the examination fee is a fixed item and not subject to reconsideration. The doctors making the inquiry have been left in the middle, with no results from any source.

Consequently, it is slightly encouraging to learn that a few life insurance companies have recently seen fit to increase the fee for examinations. We are informed that the Connecticut Mutual, the Equitable of New York, and the Fidelity Mutual of Philadelphia have put into effect an examination fee fifty per cent above the old standard. One might reasonably have expected a one hundred per cent increase, but even slight progress is noteworthy.

We commend these companies for their action in better evaluation of the services of the examining physician, in recognizing the decreased value of the older fee, in insuring suitable handling of their cases and, particularly, in leading the way out of an archaic situation. May improvement now be regular.

Letters to the Editor . . .

San Francisco

Editor, California Medicine

Dear Sir:

In a recent contribution, Rothman[2] estimated the total number of new cases of rheumatic fever occurring in residents of Los Angeles under 19 years of age to be 44 annually. This conclusion was based upon the application of a formula derived from the observations of Coombs[1] upon 218 rheumatic children followed in Bristol, England, between 1903 and 1919. It was found that 11.2 per cent (23 patients) died within five years after the onset of rheumatic infection.

In Rothman's series, 25 deaths due to rheumatic fever occurred amongst an unknown total number of cases, and he concluded that the number of new cases in Los Angeles in any year is "about 44" in the age group below 19.

Coombs and Rothman were dealing with approximately the same number of deaths during a five-year period (23 in Coombs' series, and 25 in Rothman's), yet Rothman estimated only about 20 per cent (44) of the number of cases which Coombs was actually following (218). The basis for this inconsistency is Rothman's use of a formula as follows:

> Let $x =$ the number of new cases in one year.
>
> Let 11.2 per cent of $x =$ the number of deaths in a five-year period (1939-43), among cases new in one year (1939 or any one year).
>
> Since there were 25 deaths in five years, take five deaths for any one year; then 11.2 per cent of $x = 5$, and $x = 44$ new cases per year.

This is the fallacy: the year of onset of the disease in Rothman's cases, if known, is not taken into account, and there is no basis for assuming that 11.2 per cent of $x = 5$, since there is no information that there were five deaths in the five-year period 1939-43 among *cases new in 1939*. Hence by the use of an invalid formula, a meaningless estimate of the incidence of rheumatic fever in Los Angeles is obtained.

The difficulties in determining the incidence of rheumatic fever in any area are great. The disease, moreover, is variable from patient to patient, from place to place and from time to time. Even if Coombs' studies, made from 30 to 46 years ago, were properly applied to the Los Angeles area at this time, it is doubtful if accurate or important information would be derived. A simpler method of obtaining information concerning the incidence of rheumatic fever in Los Angeles and in California is to refer to the data reported currently by local physicians. These data, although subject to the usual errors of reporting and classification, indicate the local problem to be quite appreciable, as follows:

Morbidity from Rheumatic Fever—Los Angeles County and California[3]
1948

	L. A. County	*California*
Number of children under 21 with rheumatic fever or rheumatic heart disease on the California Crippled Children Register as of Dec. 31, 1948	1,252	4,737
Number of children under 21 with rheumatic fever or rheumatic heart disease first reported to the Crippled Children Register during 1948	341	946

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Dr. Lester Breslow, Chief, Chronic Disease Service, California State Department of Public Health, furnished valuable assistance.

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Immunity Potential of Diabetics

In 1942, Cannon[2] and his associates of the department of pathology, University of Chicago, introduced the new concept of "immunity potential" into physiologic theory. This was measured in terms of the titer of specific antibodies produced by an individual following injection of an arbitrary standard dose of specific antigen. Evidence was cited suggesting that antibodies are manufactured largely from ingested proteins and protein-reserves.[3] They found that rats whose serum proteins had been reduced one-half by prolonged low protein diets produce less than one-hundredth the hemolysin and agglutinin titers produced by adequately nourished control rats.[1]

Clinical applications of Cannon's theory are reported by Wohl[4] and his associates of Philadelphia General Hospital. For these applications they selected 64 diabetic patients and 11 non-diabetic controls. Most of the individuals were given an injection of a standard dose of typhoid H antigen on the sixth, tenth and twentieth days, with periodic determinations of the resulting typhoid H agglutinin titer. Titers as high as 1:5120 and as low as 1:40 were recorded.

Plotting these titers against the fasting venous blood sugar levels showed that antibody production is independent of diabetic severity as determined by blood sugar levels. A positive correlation, however, was noted between antibody production and serum proteins. Sixteen diabetic patients with serum albumin levels below 4 grams per 100 cc. produced antiserums with an average agglutinin titer of but 1:800. An average titer of 1:2900 was produced by control normoproteinemic diabetics.

Nineteen hypoproteinemic patients were given protein supplements in the form of lactalbumin hydrolysate or casein concentrate. This was given in isocaloric diets in sufficient quantities to double the daily protein intake. The serum albumin of these patients rose from an average of 3.11 grams to 3.87 grams per 100 cc. by the end of 27 days. Their average agglutinin production was doubled by the end of this period. The extra proteins did not appear to increase the severity of the diabetes, as determined by the blood sugar levels.

A similar poor antibody response was demonstrated[5] with hypoproteinemic non-diabetics. Wohl observed a suggested correlation between hypoproteinemia and the tendency of diabetics to develop such complications as gangrene and osteomyelitis.

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Ineffective Booster Vaccines

In 1924, Wilkins and Wells[5] reported the successful control of an outbreak of dysentery in a children's institution by the use of a vaccine prepared from a Shigella culture isolated in the institution. Similar successes were afterwards reported by Paddle,[4] Felsen,[2] and Klimentova.[3]These successes have led to numerous investigations of specific antibody production in human volunteers following injections of killed dysentery cultures.

For example, Cooper[1] and his associates of the department of pediatrics, University of Cincinnati, found that volunteers given repeated injections with monovalent dysentery vaccines produce both specifice agglutinating and mouse protective antibodies. After vaccination with certain Shigella cultures the protective antibodies persist for only six to ten weeks. With other monovalent dysentery vaccines they persisted as long as 24 to 52 weeks. With a pentivalent vaccine made from a mixture of equal amounts of five Shigella cultures a 640-fold increase in mouse protection titer was noted one week after the third dose. The titer gradually fell to the 320-fold level by the end of six months, and to 80-fold level by the end of one year. The titer was not the same for all five components of the pentivalent vaccine.

Less encouraging results were obtained with booster vaccines. Two booster injections of Sh. flexneri III, given 24 weeks after primary homologous vaccination, did not stimulate increases in the mouse protective titer of the serums of ten children tested with this vaccine. This was attributed to the fact that statistically significant levels of mouse protective antibodies formed as a result of the first vaccination were still present at the time of the first booster injection. This interpretation was confirmed by the fact that three booster injections of Sh. flexneri VI, given 54 weeks after primary vaccination, when the initial protective titer of the serums had fallen to zero, did stimulate statistically significant increases in mouse protective titer, which persisted for at least six weeks.

Confirmatory results were also obtained with a pentivalent vaccine. Three booster injections of the mixed vaccine given 78 weeks after primary homologous vaccination stimulated significant increases in the mouse protective titer for the four components of the vaccine against which the initial mouse protective titer had decreased to practically zero. No significant increase was noted in the mouse protective titer against the fifth component, against which there was still a significant residual antibody titer at the time of the first booster injection.

If a similar dependence of booster effects upon a negative residual antibody titer is demonstrated with other prophylactic vaccines, modifications of conventional clinical methods may follow. However, no deleterious effects following the use of ineffective dysentery booster vaccines have thus far been reported.

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SIDNEY J. SHIPMAN, M.D. ... Council Chairman
L. HENRY GARLAND, M.D. ... Secretary-Treasurer
H. GORDON MacLEAN, M.D. ... Chairman, Executive Committee
DWIGHT L. WILBUR, M.D. ... Editor
JOHN HUNTON, Executive Secretary ... General Office, 450 Sutter Street, San Francisco 8
ED CLANCY, Field Secretary ... Southern California Office, 417 South Hill Street, Los Angeles 13

NOTICES AND REPORTS

Executive Committee Minutes

Tentative Draft: Minutes of the 215th Meeting of the Executive Committee, San Francisco, August 18, 1949.

Call to Order:

The meeting was called to order in the Bohemian Club, San Francisco, at 4 p.m., August 18, 1949, by Dr. Sidney J. Shipman, Chairman of the Council.

Roll Call:

Present were President Kneeshaw, President-Elect Cass, Speaker Alesen, Council Chairman Shipman, Auditing Committee Chairman MacLean and Secretary Garland, ex-officio. Absent: Editor Wilbur, ex-officio.

A quorum present and acting.

Present by invitation were Howard Hassard, legal counsel; John Hunton, Executive Secretary; Ed Clancy, field secretary, and William P. Wheeler, assistant executive secretary.

1. *Organization of Committee:*

On nomination made and seconded, Dr. H. Gordon MacLean was unanimously elected chairman of the committee and assumed the chair.

2. *Public Policy and Legislation:*

Various legislative matters were discussed including measures to be on the ballot at the next general election.

3. *Lassen-Plumas-Modoc County Medical Society:*

A report was read from the referee appointed by the Council to conduct hearings on charges brought against a member of the Lassen-Plumas-Modoc County Medical Society. The hearings have been concluded and the decision of the governing body of the society is expected to be forthcoming within thirty days. On motion duly made and seconded, it was unanimously voted to compensate the referee and to offer him the thanks of the Association for his handling of this matter.

4. *Legal Department:*

(a) Committee on Crippled Children's Act: The report of this committee, as approved by the 1949 House of Delegates, was discussed and it was regularly moved, seconded and voted to refer this report to legal counsel and the Committee on Public Policy and Legislation for discussion with the State Department of Public Health. The Executive Secretary and legal counsel were requested to subdivide the recommendations into two general groups: (1) those which might be accomplished by conference with health and bureau authorities and (2) those which would require legislative action.

(b) State Department of Employment: Mr. Hunton reported that the California State Department of Employment had called a meeting for August 24 to discuss proposed regulations which will govern the administration of the hospitalization benefits provisions of the Unemployment Compensation Disability Act. It was agreed that Dr. Frank A. MacDonald of Sacramento and Messrs. Hassard and Hunton should attend this meeting.

(c) Mr. Hassard reported on the final fate of the various bills in the 1949 Legislature that had been sponsored by the Association.

5. *Federal Funds for Hospital Construction:*

Discussion was held on the matter of federal and/or state funds for hospital construction, and it was suggested that the Council consider instructing Association delegates to the A.M.A. to seek national approval of a proposal to seek Congressional amendment of the Hill-Burton Bill so as to provide that federal hospital funds be made available to publicly-owned hospitals only where such hospitals agreed to accept only charity or emergency cases.

6. *California State Chamber of Commerce:*

On motion duly made and seconded, it was unanimously voted to renew the Association's annual subscription to the California State Chamber of Commerce.

7. *Membership List:*

On motion duly made and seconded, it was voted to make available the use of the Association's membership list for mailing of a symposium program by the Heart Division of the San Francisco Tuberculosis Association. Similar permission was regularly voted for a group of physicians seeking individual support for a legislative matter.

8. *California Medicine:*

On motion duly made and seconded, it was voted to approve a change in the heading of a section of the Editorial Board, to conform with the change in name of a specialty section voted at the 1949 House of Delegates. Editorial consultants under this change will be listed under Psychiatry and Neurology.

9. *Memorial to Ray Lyman Wilbur:*

On motion duly made and seconded, it was unanimously voted to spread on the minutes of this meeting a memorial resolution to the late Dr. Ray Lyman Wilbur, and to contribute $1,000 to the Ray Lyman Wilbur Memorial Fund now being created by Stanford University. The memorial resolution reads:

Resolved, That, in behalf of the entire membership of the California Medical Association, the Council adopts these resolutions in tribute to the memory of our late fellow member and distinguished colleague, Dr. Ray Lyman Wilbur.

By his death we have lost a revered and beloved associate, who was outstanding as a physician, educator, and statesman. He was a strong, tireless, understanding man, of sterling character, absolutely genuine, with a highminded sense of duty to his profession and to the public.

He was a pioneer in the study of the distribution and cost of medical care, and a prime mover in the field of voluntary prepaid health plans in California.

The best expression of our feeling is that he had earned the right to have said of him in the final hour, the age-old words of approval, "Well done, thou good and faithful servant."

Resolved further, That this meeting be adjourned out of respectful memory to Dr. Ray Lyman Wilbur.

Resolved further, That a copy of these resolutions be spread upon the official minutes of the Council of the California Medical Association, and that a copy be transmitted to the member of the family, that we may extend an expression of our sincere and heartfelt sympathy in their deep bereavement.

10. *Industrial Medical Fees:*

Dr. Cass reported that his committee had held a second meeting with a committee representing insurance carriers on the subject of medical and surgical fees to apply in industrial injury cases. There was considerable discussion to the effect that the alternative fees proposed by the insurance carrier representatives were too low and that the January 1, 1950, prospective effective date for such fees appeared to be an unreasonably delayed arrangement. It was agreed that the Council should discuss this matter further and that meanwhile Dr. Cass should report to the insurance committee that their proposal could not be accepted at this time.

11. *Committees:*

(a) Committee on Study of Alcoholism: After discussion, it was agreed that the Editor be asked to consider publication, in serial form if necessary, of the report of the Special Committee on the Study of Alcoholism, which was approved by the 1949 House of Delegates.

(b) Council Committee on Affiliate Membership Requirements: Dr. Alesen presented the report of this committee, which held that those physicians engaged in full-time postgraduate study should be considered eligible for a reduction of dues to as little as the minimum basis as a means of continuing their active membership in the Association.

(c) C.P.S. Fee Schedule Committee: On motion duly made and seconded, it was voted that the Chairman of the Council, Chairman of the Executive Committee and the Secretary be constituted a committee to prepare nominations for the C.P.S. Fee Schedule Committee for appointment by the Council for forwarding to California Physicians' Service.

(d) Committee on Hospitals and Professional Relations: In line with the report of Dr. Hess' committee in the A.M.A., on the subject of relationships between hospitals and professional staff members, it was regularly moved, seconded and voted to refer matters dealing with hospital-physician relationships to the standing Committee on Hospitals, Dispensaries and Clinics.

(e) Committee on Postgraduate Activities: The Secretary discussed the matter of a sliding scale arrangement for the compensation of the director of the committee program. The matter was referred to the committee.

(f) Medical Society of the State of California: Dr. MacLean reported on further meetings with members of the board of trustees of the Medical Society of the State of California and it was regularly moved, seconded and voted to ask this board to consider requesting the Council of the Association for nominations when vacancies occur on the M.S.S.C. Board.

(g) Committee on Local Health Officers: Dr. Shipman reported on a meeting attended by himself, Dr. D. L. Wilbur and Mr. Hunton with a committee of the California Association of Local Health Officers. It was regularly moved, seconded and voted that such meetings be continued and that the health officers' group be invited to send representatives to regular meetings of the Council.

(h) A.M.A. Conference on Physicians and School Health: It was regularly moved, seconded and voted to send a representative to the conference of this committee, scheduled to be held in Highland Park, Illinois, in October, 1949.

(i) U. S. Pharmacopaeial Convention: It was regularly moved, seconded and voted that the Association not participate in this convention.

12. *Public Relations:*

Dr. Cass reported on a meeting held in Denver relative to the proposed adoption of President Truman's Reorganization Plan No. 1, following which Drs. Warren Allen of Oakland and Paul Foster of Los Angeles were requested to proceed to Washington to confer with California members of Congress. It was regularly moved, seconded and voted to forward to all C.M.A. Delegates and Alternates to the A.M.A. a copy of the report rendered by Dr. Foster on this visit and to express the thanks of the Association to Drs. Foster and Allen for their cooperation.

13. *Osteopathic Cancer Programs:*

A request was presented for a ruling on the propriety of several physicians appearing on a cancer symposium program arranged by the California Osteopathic Association in conjunction with the California State Department of Public Health, and it was agreed that the matter of appearing on such a program be left at the discretion of the individual physicians invited to participate.

Adjournment.

H. GORDON MACLEAN, M.D., *Chairman*
L. HENRY GARLAND, M.D., *Secretary*

Sonoma Blood Bank

Closing another important link in the blood bank coverage of the State of California, the Sonoma County Community Blood Bank was formally dedicated on August 20 in Santa Rosa. This new community blood bank is endorsed by the Sonoma County Medical Society and will be under the technical direction of the society with Dr. Owen Thomas in charge. It will operate as do the other non-profit community blood banks throughout the state, such as the Alameda County Medical Association Blood Bank, the Irwin Memorial Blood Bank of the San Francisco County Medical Society, the Sacramento Medical Foundation, and the San Mateo Blood Bank, with which it will be closely tied in reciprocity agreements. The Sonoma Blood Bank will charge the usual small service fee to cover the cost of preparing, processing, and distributing each unit of blood and will require a donor replacement for each unit. It will serve the Sonoma, Petaluma, Sebastopol, Santa Rosa, Healdsburg, and Russian River areas.

The blood bank was started by a non-profit association composed of physicians from the entire area as well as community representatives. The lot in Santa Rosa was donated and much of the building materials, architect's drawings, labor, and landscaping was furnished free of charge by the community. The bank, as it stands at this writing, represents a monetary value of some $30,000 and has a financial reserve to start its monthly operations.

This community blood bank is an excellent example of medical society and community cooperation. It was founded as a result of the initiative of hardworking physicians and groups representing business, industry, labor, and fraternal organizations.

The Medical Society and the community are to be congratulated on their excellent achievements. The community type blood bank is welcomed into the over-all state plan fostered by the California Medical Association Blood Bank Commission.

Access to Hospital Records

Disagreeing with an opinion (No. 48/87) by the California Attorney General that authorized representatives of the State Department of Public Health may examine hospital records of individual patients, the firm of Musick, Burrell & Ingebretsen, legal counsel for the Association of California Hospitals, has rendered the following opinion to its client. (Opinion of Peart, Baraty & Hassard, counsel for the California Medical Association, was published in California Medicine *71:155, August, 1949.)*

This is written in answer to your request for our opinion upon the legal conclusions drawn by the Attorney General's opinion No. 48/87 dated April 14, 1949, in which the Attorney General's office concluded that certain regulations of the Director of Public Health made pursuant to Sections 1400 et seq., of the Health and Safety Code, dealing with the licensing of hospitals, were within the authority granted to said Director. Among the requirements in the proposed regulations were the following:

1. A record shall be kept in a satisfactory manner, in a permanent file, on a yearly basis, on each patient admitted to any hospital.

2. The minimum record shall consist of:

Name.
Admittance address.
Sex.
Age.
Marital status (M S D W).
Date of admission.
Date of discharge.
Name and address of person or agency responsible for patient.
Name, address and telephone number of attending physician.
Complete history and physical examination.
Temperature chart, including pulse and respiration.
Admission and working diagnosis.
Diagnosis.
Nursing notes.
Medication orders.
Progress notes.

Such rules further provide:

No medication or treatment shall be given in institutions covered by these standards except on the written order of one lawfully authorized to give such order.

All records shall be permanent, either typewritten or legibly written with pen and ink. . . .

The proposed regulations go further in requiring that, in addition to the above "minimum" records, each hospital shall keep certain specific additional information regarding laboratory reports, surgical records and condition of patient at the time of discharge with final diagnosis.

The authority for the issuance of rules and regulations relating to the licensure thereof is granted by Section 1411 of the Health and Safety Code which provides as follows:

1411. *Rules and regulations.* The State department, after

> consultation with the advisory board and receipt of the recommendations of the advisory board in respect thereto, shall make and promulgate, and may thereafter modify, amend, or rescind, reasonable rules and regulations to carry out the purpose of this chapter, classifying hospitals and prescribing minimum standards of safety and sanitation in the physical plant, of diagnostic, therapeutic and laboratory facilities and equipment for each class of hospitals.

We have given the proposed regulations, together with the opinion of the Attorney General's office, very serious consideration and have consulted with other interested attorneys such as the firm of Peart, Baraty & Hassard, counsel for the California Medical Association, Howard Ziemann, counsel for many of the Catholic hospitals, and have concluded that the Director of Public Health has exceeded his statutory authority in issuing regulations insofar as they require the maintenance of certain records by the hospitals and interfere with the internal administration of the hospital and in this connection reach a contrary conclusion with that of the Attorney General in the above opinion.

We base our conclusion upon a careful reading of Section 1411 and believe that, when closely analyzed, this section gives the State Department only the right to issue rules and regulations covering the actual physical plant of the hospital and in no way covers standards of medical practice or medical records.

It should be further noted that this chapter is penal in nature, and under the terms of Section 1417 a person may be fined or imprisoned for violation. As a matter of statutory interpretation a penal statute of this nature must always be strictly construed.

Furthermore, when the hospital licensing law was before the Legislature as Assembly Bill 601, the original bill as introduced by Assemblyman Lyon on January 23, 1945, contained broader language than the proposed Section 1411. However, the bill was amended on May 14, 1945, to delete the right of the State department to prescribe regulations for the "minimum qualifications of training for the professional staffs of each class of hospitals." This would indicate that the Legislature did not intend to permit the State Department of Health to interfere with the internal administration of the hospital.

It should be further noted that the records which are required are of a kind which would seem to more logically come within the purview of the Board of Medical Examiners rather than the Department of Health since they deal primarily with the relationship between the physician and patient.

In the Attorney General's opinion considerable discussion is given to the question as to whether or not an inspection of these records would constitute an illegal invasion of privacy and whether or not the records themselves are privileged. We must agree with the conclusion of the Attorney General that Section 1881, Subdivision 4 of the Code of Civil Procedure would not apply in this situation and is applicable only to court actions. This provides in part:

> *Physician and patient.* A licensed physician or surgeon can not, without the consent of his patient, be examined in a civil action, as to any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient;

However, it is our belief that the Attorney General's opinion ignores the fact that there is strong public policy against the unnecessary disclosure of such highly confidential information. In this connection, your attention is called to an excellent annotation appearing in Volume 133, page 732 of American Law Reports.

In other words, it is our opinion that it might be possible for the statutory right to be given to the Department of Health to examine these records, but it does not appear to have such right at this time, and any move in this direction should be vigorously opposed by hospitals. As a matter of fact, hospitals should take the necessary steps as a group to request a withdrawal of these particular regulations, and in the event they are not withdrawn, take steps through court action to have them declared invalid.

In closing, it should be noted that the regulations do include certain requirements for keeping certain information for filling out birth certificates. To this extent the regulations are proper since they fall within the provisions of Section 10,000 et seq., of the Health and Safety Code which specifically requires the keeping of such records.

In Memoriam

Beard, Marshall Rowles. Died in San Fernando, July 25, 1949, aged 38. Graduate of the McGill University, Faculty of Medicine, Montreal, 1938. Licensed in California in 1939. Doctor Beard was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

*

Duncan, Rex Dowler. Died in Los Angeles, July 24, 1949, aged 63, of anemia. Graduate of the University of Southern California School of Medicine, Los Angeles, 1909. Licensed in California in 1909. Doctor Duncan was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

*

Harder, William Ralph. Died in San Jose, August 16, 1949, aged 50, following an emergency operation for a gallbladder ailment. Graduate of the University of California Medical School, Berkeley-San Francisco, 1928. Licensed in California in 1928. Doctor Harder was a member of the Santa Clara County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

*

Kohlenberger, Charles Fredrich William. Died in Fullerton, August 14, 1949, aged 52, of a brain tumor. Graduate of Northwestern University Medical School, Chicago, 1927. Licensed in California in 1928. Doctor Kohlenberger was a member of the Orange County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

LYMAN, GEORGE DUNLAP. Died in San Francisco, July 26, 1949, aged 66. Graduate of Columbia University College of Physicians and Surgeons, New York, 1909. Licensed in California in 1911. Doctor Lyman was a member of the San Francisco County Medical Society, the California Medical Association, and the American Medical Association.

⁂

MACLAUGHLIN, WILLIAM E. Died August 14, 1949, aged 78. Graduate of the University of Minnesota Medical School, Minneapolis, 1896. Licensed in California in 1909. Doctor MacLaughlin was a retired member of the Los Angeles County Medical Association, and the California Medical Association.

⁂

MALMGREN, GEORGE ERLAND. Died in Beverly Hills, August 24, 1949, aged 47, of pneumonia. Graduate of the University of Minnesota Medical School, Minneapolis, 1927. Licensed in California in 1931. Doctor Malmgren was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

⁂

NASATIR, A. VICTOR. Died in Los Angeles, August 5, 1949, aged 51, of coronary thrombosis. Graduate of the University of Illinois College of Medicine, Chicago, 1924. Licensed in California in 1924. Doctor Nasatir was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

⁂

ROSANOFF, WILLIAM ROSS. Died near Red Bluff, August 17, 1949, aged 31, when his automobile left the road and overturned. Graduate of the University of California Medical School, Berkeley-San Francisco, 1940. Licensed in California in 1940. Doctor Rosanoff was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

⁂

SCHAEFFER, RALPH WILLIAM. Died in Redondo Beach, August 3, 1949, aged 59, of sarcoma. Graduate of Cornell University Medical College, New York, 1921. Licensed in California in 1923. Doctor Schaeffer was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

⁂

SEIBEL, JOHN JOSEPH. Died in Minot, South Dakota, July 21, 1949, aged 60. Graduate of the University of Minnesota Medical School, Minneapolis, 1920. Licensed in California in 1920. Doctor Seibel was a retired member of the San Joaquin County Medical Society, and the California Medical Association.

⁂

WARREN, HARRY CLAUD. Died in San Francisco, July 29, 1949, aged 68, of coronary thrombosis. Graduate of the University of California Medical School, Berkeley-San Francisco, 1904. Licensed in California in 1904. Doctor Warren was a member of the San Mateo County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

⁂

WAYTE, EDWIN. Died in Whittier, August 11, 1949, aged 74, of a heart ailment. Graduate of Hahnemann Medical College and Hospital of Philadelphia, 1899. Licensed in California in 1901. Doctor Wayte was a retired member of the Los Angeles County Medical Association, and the California Medical Association.

"A Very Parfit Gentil Knight"

(William Bennett Bean, head of the department of internal medicine of the University of Iowa College of Medicine, pays tribute to his late friend and associate, Mayo H. Soley, dean of the College of Medicine, in an editorial in the Daily Iowan, *Iowa City.)*

Mayo Soley came to us with the fervor of high ideals and hopes that he might supply the college of medicine in Iowa with the leadership needed to attain excellence worthy of the people of the mid country of our land. Bringing with him the commingled pride and reserve of a New England heritage to which was added the enthusiasm of the West Coast, he epitomized the traits which have given greatness and luster to the nation.

He had achieved distinction as a physician. He had done imaginative research of high originality as a student of the processes of disease. He had made his mark in the field of medical school administration.

Motivated by a profound feeling for the patient and the student, the warmth of his presence made him a sympathetic teacher. Because he was always a student he was a superb clinician. His leadership was recognized by membership in the significant medical societies, and service on national committees and editorial boards.

But this array of notable attainments is only the cold list of what a stranger might say in tribute. His warmth and color gave to them a meaning which kept him high in the affectionate regard of his fellows.

He was the cherished center of a devoted family. He was a thoughtful and devoted friend. There was about him the style and elegance of the sunny side of the hill on a spring day. His energy and enterprise found outlets in varied spots in which he went beyond proficiency, for he was satisfied with nothing short of perfection.

Into everything he put a prodigy of effort, carrying on his multitudinous tasks with verve and buoyancy. With high sense of duty, sound scholarship, keen intellect and ready wit he had at his command the mass of detail needed to direct a college of medicine. What he had achieved in the face of innumerable difficulties in one short year had won for him not only respect and admiration but the sympathetic support of his associates.

With such qualities and character he brings to mind the grace and skill, elan and many-sidedness of the Elizabethan gentleman. Beyond anyone's thought he was impatient of delay and drove himself relentlessly but without bitterness to reach his goal. With so much of the path traversed, he was suddenly overwhelmed, a martyr to his own idealism.

"He was a very parfit gentil knight."

NEWS and NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

The fourth annual **Merritt Hospital medical seminar** held under the auspices of the hospital staff September 1 and 2 was attended by 230 physicians. This was the largest attendance since the seminars were instituted in 1946. Physicians were present from Yreka to Santa Barbara at the invitation of members of the staff and officers of the hospital.

The guest speakers were Dr. Frederick A. Coller, professor of surgery, University of Michigan Medical School, and Dr. Edwin G. Bannick, clinical professor of medicine, University of Washington School of Medicine. The program consisted of two formal presentations by each of the visiting speakers, two clinico-pathological conferences and two staff presentations.

In addition, both guest speakers addressed a regular meeting of the Alameda County Medical Society held the night of September 1. Dr. Bannick discussed "The Diagnosis and Management of Functional Complaints" and Dr. Coller presented the subject, "Indication for and Results of Splenectomy."

* * *

CONTRA COSTA

Appointment of **Dr. Warren A. Ketterer** as assistant health officer for Contra Costa County was announced recently by **Dr. W. A. Powell,** county health officer. Announcement of Dr. Powell's intention to retire November 30 of this year, when he reaches the age of retirement under county regulations, was made several months ago.

LOS ANGELES

Dr. Max S. Dunn, professor of chemistry, has been appointed faculty research lecturer for 1949-50 on the Los Angeles campus of the University of California.

* * *

The first of a series of short-term courses on **complete care of the poliomyelitis patient** will be offered in November at the Orthopaedic Hospital in Los Angeles. Presentation of the courses is aided by a grant from the National Foundation for Infantile Paralysis.

The one-week course for physicians, November 7 through November 11, covers the problems of the patient from onset to optimum recovery, with special emphasis on the physician's use of ancillary services. Announcement of the course says that it is "particularly recommended for orthopedists, pediatricians and general practitioners who desire an orientation in the over-all care of the patient viewed as a total individual."

Courses for registered nurses and physical therapists will be given from November 7 through November 18.

Further information may be had by writing to Charles L. Lowman, M.D., 2400 Flower Street, Los Angeles 7, California.

* * *

The School of Tropical and Preventive Medicine of the College of Medical Evangelists sponsored, during the month of August, the first **course in tropical diseases** to be given in a foreign country to undergraduate United States medical students. Eleven senior students spent three weeks in Vera Cruz, Mexico, where they heard lectures, studied advanced laboratory pathology and diagnosis, and saw clinical demonstrations of prevailing diseases of that tropical area. A fourth week was spent in Mexico City where special lectures were offered at the Institute of Health and Tropical Diseases by the medical faculty of the University of Mexico.

Dr. Harold Mozar, director of the School of Tropical and Preventive Medicine, said that a similar course is planned for next summer.

Invitation to hold the summer session at the Boca del Rio Experimental Station was extended by the Ministry of Public Health and Welfare of Mexico at the suggestion of **Dr. Alonzo Hardison,** director of the Institute of Inter-American Affairs in Mexico.

SAN BERNARDINO

Dr. Warren Fox, formerly health officer for San Bernardino County, and for the past year health officer for the City of San Bernardino, has resigned that post because of ill health, according to recent announcement by Mayor James Cunningham.

SAN FRANCISCO

Dr. Robert Evans, associate professor of medicine at Stanford University School of Medicine, and **Dr. Paul G. Hattersley** of the department of medicine of the same school, have been appointed Pacific Area medical consultants to the **National Blood Program** of the American Red Cross. The two California physicians, and consultants in other areas, will advise the Red Cross medical staff on scientific and medical aspects of the program.

SANTA BARBARA

Dr. Helen Hart last month was appointed health officer for the City of Santa Barbara. She succeeds **Dr. C. T. Roome,** who retired from the post after 14 years of service. At the same time, **Dr. Nils W. Boulduan,** Dr. Roome and Dr. Hart were appointed medical members of the City Health Board.

SONOMA

The Sonoma County Medical Society was host for the annual four-county meeting of the medical societies of Marin, Napa, Solano and Sonoma counties on August 11. Held at the Santa Rosa Golf and Country Club, the meeting was attended by over 100 physicians. The supper meeting featured addresses by Dr. R. Stanley Kneeshaw, president of the California Medical Association, State Senators F. Fresley Abshire and Luther E. Gibson and Assemblyman Richard McCollister. All spoke on the general subject of compulsory health insurance.

GENERAL

The third annual California **Rural Health Conference** will be held at the Hotel Senator, Sacramento, October 29, 1949. This conference is being organized by the California

POSTGRADUATE EDUCATION NOTICES

American College of Physicians

Course: The Physiological Approach to Clinical Problems in Cardiovascular Disease.

Date: December 5 through December 10, 1949.

Fee: $30.00, A.C.P. members and V.A. (P. L. 346); $60.00 non-members.

Contact: George C. Griffith, M.D., F.A.C.P., Director; University of Southern California School of Medicine, Los Angeles 33, California.

California Chapter of the American College of Chest Physicians

Course: Diseases of the Chest.

In cooperation with the University of California Medical School and Stanford University School of Medicine.

Date: December 5 through 9, 1949.

Contact: Stacy R. Mettier, M.D., Medical Extension, University of California Medical Center, San Francisco 22, California. Fee and printed program supplied on requests including veterans.

College of Medical Evangelists, Graduate School of Medicine

Course: Otolaryngology.

Date: November 1 through December 20, 1949. Tuesdays 8:00 p.m. to 9:30 p.m.

Fee: $30.00.

Course: Genito-urinary Diseases.

Date: November 14 through November 18, 1949. Daily 10:00 a.m. to 2:00 p.m.

Fee: $50.00.

Course: Diseases of the Kidneys.

Date: November 15 through December 20, 1949. Tuesdays 7:30 to 9:00 p.m.

Fee: $25.00.

Courses in Internal Medicine, Dermatology, Functional Diseases in General Practice, General Urology, Neurology, Proctology, Cardiology, Ophthalmology and Varicose Veins will be offered in January and March of 1950.

Contact: H. M. Walton, M.D., Dean, Graduate School of Medicine, College of Medical Evangelists, 312 No. Boyle Avenue, Los Angeles 33, California.

University of California, Los Angeles

Course: A series of lectures in the Basic Sciences as applied to Bone and Joint Surgery will be sponsored by the Division of Orthopedic Surgery, General Medical and Surgical Hospital, Veterans Administration Center, Los Angeles, and the Orthopedic Hospital of Los Angeles. The complete series will extend over a two-year period, with a total of 40 lectures, 20 sessions per year.

Contact: Office of Medical Extension, University Extension, University of California, Los Angeles 24, California.

University of Southern California

Full time and short courses are conducted by the faculty of the School of Medicine using the facilities of affiliated institutions.

Course: 831. Internal Medicine, 9 months, 40 hours per week, general and specialty services.

Date: December 5, 1949.

Fee: $750.00, also G. I. students.

Contact: Edward C. Rosenow, Jr., M.D., Director, Medical Extension Education, University of Southern California, School of Medicine, Los Angeles County General Hospital, Box 158, 1200 North State Street, Los Angeles 33, California.

Stockton Postgraduate Study Club

Meetings will be held in the Lecture Hall, Stockton State Hospital, in the Psychopathic Hospital Building on Magnolia Street.

October 20 (Thursday), 8 p.m.—"Common Benign Diseases of the Rectum and Anus," Dr. Walter Birnbaum, Assistant Clinical Professor of Surgery, Medical School, University of California.

October 27 (Thursday), 8 p.m.—"Clinical Allergy—Its Diagnosis and Treatment," Dr. Albert H. Rowe, Lecturer in Medicine and Allergist, Medical School, University of California.

November 17 (Thursday), 8 p.m.—"Surgical Diseases of the Biliary Tract," Dr. Wm. Longmire, Jr., Chairman Department of Surgery of School of Medicine, University of California at Los Angeles.

December 8 (Thursday), 6:30 p.m.—Annual Dinner Meeting (place to be announced).

"Recent Developments in Virus Diseases and Their Treatment," Dr. Karl F. Meyer, Director of Hooper Institute Foundation for Medical Research.

Contact: C. A. Broaddus, M.D., Chairman, 242 N. Sutter Street, Stockton, California.

Medical Association Committee on Rural Medical Service, with the cooperation of the California Farm Bureau Federation, the State Grange, the Parents and Teachers Association, state and county health departments, and various other interested organizations.

The conference subject will be **"The Migratory Worker and Rural Health."** Announcement of the conference said that "this is one of the greatest rural health problems in this state and by nature one of the most difficult to attack due to the many variable factors." The medical, economic, hospitalization and public health aspects will be covered both by formal presentations and by panel and open discussions.

* * *

The American Goiter Association again offers the **Van Meter Prize Award** of $300 and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the association which will be held in Houston, Texas, March 9, 10, and 11, 1950, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed 3,000 words in length; must be presented in English; and a typewritten double spaced copy in duplicate sent to the corresponding secretary, Dr. George C. Shivers, 100 East St. Vrain Street, Colorado Springs, Colorado, not later than January 15, 1950.

A place will be reserved on the program of the annual meeting for presentation of the prize award essay by the author, if it is possible for him to attend. The essay will be published in the annual proceedings of the association.

* * *

The U. S. Air Force Medical Service **will commission 300 civilian physicians** now serving as internes, as first lieutenants on active duty with the Air Force Medical Reserve Corps, Major General Malcolm C. Grow, Surgeon General of the Air Force, announced recently. **Eligible to receive commissions** are medical school graduates now serving interneships at approved hospitals, who have at least six months of interneship remaining. Physicians who are so commissioned will serve two months of active duty for each month of interneship as commissioned members of the Medical Reserve Corps.

Upon completion of active duty tours, officers who apply and are selected as members of the regular Air Force Medical Corps will be eligible for participation in the Air Force residency program to be conducted at civilian and military hospitals.

Full information may be obtained upon written request to the Officer's Procurement Branch, Office of the Surgeon General, Headquarters, U. S. Air Force, Washington 25, D. C.

* * *

The official **form for reporting work injuries** by physicians and surgeons as required by law has recently been revised by the State of California Department of Industrial Relations. Use of the new form will be mandatory beginning January 1, 1950, and after that date no other forms will be accepted by the department.

As in the case of the old form, supplies of the new form, which bears the title Doctor's First Report of Work Injury, Form 5021, will be available upon request to the Division of Labor Statistics and Research, Department of Industrial Relations, P.O. Box 965, San Francisco 3. As heretofore, workmen's compensation insurance carriers will also reproduce the forms and supply them to physicians and surgeons.

Every physician and surgeon who attends an employee injured as a result of a work accident or occupational disease is required by law to file a report directly with the Division of Labor Statistics and Research. The **reports are to be filed immediately**—in no event later than seven days after the first treatment.

At the present time the Department of Industrial Relations does not require any medical report other than the Doctor's First Report of Work Injury. Forms for bills, progress reports and final reports to insurance companies are supplied to physicians and surgeons by the companies. These latter reports need not be filed with the Department of Industrial Relations.

* * *

The American Urological Association has announced the opening of competition for its **annual award of $1,000** (first prize of $500, second prize $300 and third prize $200) for essays on the result of some clinical or laboratory research in urology. Competition will be limited to urologists who have been in such specific practice for not more than five years and to residents in urology in recognized hospitals.

The first prize essay will be read on the program of the meeting of the American Urological Association, to be held in Washington, D. C., May 29-June 1, 1950.

Full particulars may be had from the secretary of the association, Dr. Charles H. de T. Shivers, Boardwalk National Arcade Building, Atlantic City, N. J. Essays must be in his hands before February 20, 1950.

INFORMATION

Musings on the "President's New National Health Bill"

It's Sunday evening and I am weary of trying to figure ways and means to promote a larger budget for the Riverside County Health Department, so I pick up the May 7 issue of the *J.A.M.A.* and promptly fall from the frying pan into the fire. The cause of the difficulty is a summary of the "President's New National Health Bill." Following are the conclusions of an M.D. who has a smattering of statistical training:

First, I admire the rough sketch I make of the organizational chart for committees set up in S. 1679. It's a honey but would require too much county paper to reproduce it.

Then I while away the time trying to determine the number of persons involved in administering the proposed program. I come out with something like this derived from the organizational chart:

Item	*Persons*
Truman	1
Federal Security Administrator	1
National Health Insurance Board	5
National Council on Education for Health Professions	24
National Advisory Council for Research on Child Life (Estimate)	20
National Advisory Medical Council	17
48 State Advisory Committees (Estimate at least 7 members per committee)	336
Approximately 3,200 counties with a specified maximum of 16 on the local administrative committee	51,200
3,200 local professional committees allowing only one committee for each county (although there may be more committees) with an estimated membership of 7 per committee	21,400
Since it requires a minimum of one nurse to 2,500 people for an adequate bedside program, the home nursing program would require nurses	60,000
Total	133,004

My calculation of more than 130,000 committee members, administrators and nurses in the country at large does not include an estimate of the numbers involved in the special advisory and technical committees at the Federal level. The bill provides for any number of such committees.

It is simple so far. When I try to estimate items *not* in the bill, the number of clerical personnel needed to process forms, bills, checks for doctors and so forth, besides someone to double-check the checks, at the county level, and a duplicate set at both the state and Federal levels (that is the way EMIC worked) I am about to quit, although I do come up with an estimate of a minimum of 40,000 additional personnel.

Then, I think, what's to prevent further decentralization by setting up intermediate personnel in each of the regular USPHS district offices? The possibilities are endless.

Can there be any advantage in an organization of such magnificent proportions? There must be, or the Washingtons wouldn't have thought of it in the first place. There must, according to an unwritten law of nature, be some good in everything. I cudgel my brain and, lo, light appears. Come the depression there will be committee men, administrators, clerical personnel (we'll even have to have more janitors to carry out the wastepaper) et al. to the tune of a minimum of about 175,000 (says my statistical training) who will not be out of work.

Then, too, for some time I am worried that the local health officer might be designated as the local administrator of the so-called Health Plan. Imagine my relief to find that the sponsors of the bill are kind enough to remember to specify the duties of the local administrator. Judging from those specifications any health officer who is worth his salt and does anything to earn his pittance won't have the time to be the local administrator.

Note: Guess the whole business is a waste of time but the possibilities for employment and hitching a ride on the gravy train are fascinatingly fantastic.

P. S.: They should give physicians preference on some of these fancy jobs.

Robert Westphal, M.D.

BOOK REVIEWS

CLINICAL CYSTOSCOPY—Technic, Procedures, Diagnosis, Treatment. By Lowrain E. McCrea, M.D., Clinical Professor of Urology, Temple University Medical School. Drawings by B. Engle Shaffer. In Two Volumes—742 Illustrations, 201 in color. Second Edition. F. A. Davis Company, Philadelphia, 1949. $28.00.

The second edition of this work has been largely rewritten and brought up to date. Several new chapters have been added. Like the first edition, this is a text on cystoscopic diagnosis and procedure which thoroughly covers most diseases seen in urologic practice. It is a book for the part-time urologist and for those in closely allied specialties. The text is concise, but sufficiently comprehensive, and is suitable for quick, office reference. The book is printed with clear type on good paper and is very readable.

There are over 700 illustrations, drawings, paintings and photographs. Most of these are excellent and clearly depict most cystoscopic procedures, pathologic lesions, and x-rays of various urologic conditions. There are numerous actual color, intravesical photographs of normal and pathologic conditions which are well done and add greatly to the interest of the book. Rarely seen in such profusion in most textbooks, these color photographs were carried out by a method perfected by the author himself.

Data on the sulfonamides and antibiotics, which are complete and detailed, are not confined to a single chapter, but are spread through the book and discussed in relation to various different pathologic conditions.

There is an excellent section on urology in children, a chapter usually neglected in urologic texts. Prostatic hypertrophy and the latest developments in transurethral resection are covered briefly but adequately. The colored plates showing consecutive cystoscopic views of the vesical neck in the presence of obstruction are of considerable value in understanding and demonstrating the technique of prostatic resection.

The index has been enlarged and emphasizes the diagnostic and therapeutic features of the text. The bibliography is very complete and makes the book a valuable asset to any urologist's library.

The text in general covers a lot of paper; some of the pictures, quite small in size, occupy an entire page. Possibly the material in the two volumes could be included in a single volume of no greater size or weight, and with a considerable saving in the cost of the book.

* * *

HANDBOOK OF DISEASES OF THE SKIN. By Richard L. Sutton, M.D., Emeritus Professor of Dermatology and Syphilology, University of Kansas Medical School, and Richard L. Sutton, Jr., M.D., Associate Professor of Dermatology and Syphilology, University of Kansas Medical School. 1,057 Illustrations. The C. V. Mosby Company, St. Louis, Mo., 1949. $12.50.

This volume is a most worthy successor to the previous texts, both large and small, which the Suttons have written from time to time over a period of years. The attractiveness of binding, the convenience of small size, the comprehensiveness of its subject matter and the fine quality of illustrations combine to make the book a "must" on the reference shelf of not only the dermatologist, but the internist, the general practitioner and the student as well.

The authors have contrived to present the subject matter of dermatology and syphilology in a brief but not abbreviated form. Not only the common but also the rarest dermatoses and cutaneous syndromes are described and adequate references to the literature are included in each paragraph as they occur.

Three sizes of printing are employed in the text: A standard, easily readable type for the bulk of the text, a slightly smaller type for discussions which are of interest but are not essential for an understanding of the text, and a still smaller type for various laboratory procedures, etc. This is one of the methods by which compactness has been achieved without any sacrifice of essential material.

The book achieves a standard of high quality in a convenient size.

* * *

TEXTBOOK OF MEDICINE. By various authors, edited by Sir John Conybeare, K.B.E., M.C., D.M. (Oxon.), F.R.C.P., Physician to Guy's Hospital, London, Ninth Edition. The Williams and Wilkins Co., Baltimore, 1949. $8.00.

Any textbook which has gone through nine editions and five reprints in the course of 20 years has almost certainly got to be good. And such is the case with Conybeare's ninth edition as a British text for medical students. The discussions of disease conditions are succinct, pointed, clear and commonsensical. The illustrations are few but excellent. Compared to similar American texts it is somewhat shorter and equally inclusive.

That it is primarily a text for British students, however, is emphasized at frequent intervals. The terminology is British and includes such items as weights in stone rather than pounds, British pharmacopeial names, and British names for various diseases. Dosages are given in either the apothecary or the metric system, according to the taste of the individual contributor. This may show the independence of the various authors but is apt to be confusing for the student.

Despite recent revision, the book is several years behind on certain advances in medicine. In particular, the newer drug therapy is lacking. Thiouracil is discussed but propylthiouracil is omitted. Sulfanilamide is still recommended as the drug of choice for hemolytic streptococcus infections. The method of administration of penicillin is likewise at least two years behind date. Croton oil purgation is recommended for cerebral hemorrhage. The section on endocrinology seems generally sketchy. For example, discussion of the menopause is limited to one page.

For the American student this is not as valuable as one of the standard American texts on general medicine. However, it can be recommended as a useful and worthwhile book for study and reference.

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THE ADRENAL GLAND. By Frank A. Hartman, Ph.D., Research Professor of Physiology, Ohio State University, and Katharine A. Brownell, Ph.D., Instructor in Physiology, Ohio State University. Lea and Febiger, Philadelphia, 1949. $12.00.

This scholarly book on the adrenal gland covers all phases of the subject: Anatomy, embryology, physiology and clinical disorders. The fundamental laboratory work is comprehensively reviewed, a task for which the authors, who have done original work in the field, are well qualified. An immense amount of factual material is given and the bibliography covers well over 100 closely printed pages. The book is handsomely printed and illustrated with numerous tables and charts. While experts in the field no doubt will criticize small points, this monograph certainly represents the most comprehensive encyclopedia on the subject at the present time.

PRACTICAL ASPECTS OF THYROID DISEASE. By George Crile, Jr., M.D., Department of Surgery, Cleveland Clinic. W. B. Saunders Company, Philadelphia, Pa., 1949. $6.00.

This 355-page, pocket-sized volume by the junior Crile is a fairly comprehensive review of our present knowledge of thyroid disease. Although the author is a surgeon he has attempted to deal with all the various phases of thyroid disease, or at least with "the practical aspects." He states in the preface: "This volume is designed to present the picture of diseases of the thyroid gland in such a way that medically trained readers may emerge with a better understanding of the aims of the surgeon, and surgically trained readers may better understand what the internist and radiologist are able to accomplish." This concession by a surgeon that the internist and radiologist can accomplish results, especially in the management of the thyrotoxic patient, is a measure of Dr. Crile's breadth of view in dealing with his subject.

While considerable space is devoted to surgical treatment, including a chapter upon technique, yet the author has dealt adequately with such non-surgical means of handling thyrotoxicosis as the administration of iodine and the new, so-called antithyroid drugs, as well as radiation therapy, especially its latest form, radioactive iodine.

This is a volume which can be read profitably, and used as a reference book, by anyone dealing with the treatment of thyroid disease. In general it brings up to date our present knowledge in a rapidly changing field of medicine where the last word has not yet been spoken.

* * *

DEMONSTRATIONS OF PHYSICAL SIGNS IN CLINICAL SURGERY. By Hamilton Bailey, F.R.C.S.(Eng.) Surgeon, and Surgeon-in-Charge of the Genito-urinary Department, Royal Northern Hospital, London. Eleventh Edition. The Williams and Wilkins Co., Baltimore, Md., 1949. $9.00.

This is an excellent, compact little book of 400 pages with 657 illustrations devoted entirely to the clinical signs of surgical diseases. It is written clearly and concisely with wonderful illustrations, the majority being colored plates, to emphasize each clinical sign discussed. It is the surgical counterpart of the Cabot's "Physical Diagnosis" with which every medical student and practitioner is familiar. It is equally as good as Cabot's book, which is devoted to physical signs in medical disorders. It will be of particular value to medical students and general practitioners since it stresses the fundamentals of eliciting and demonstrating physical signs in surgical disorders. To the reviewer's knowledge it is the only good book of its type in present-day surgical texts, and it is wholeheartedly recommended as an outstanding contribution in teaching the art of physical diagnosis from a surgeon's viewpoint. It can be read rapidly and easily, and an effort is made to have its context stick in the reader's mind by enlivening the straightforward presentation with aphorisms and quotations and striking phrases from great surgeons of past and present. The author also evaluates well the material presented by enriching it with the wealth of his own personal experience in surgical diagnosis by physical signs. This book deserves widespread use by students, general practitioners, and clinicians who wish to remain adept in the art of clinical diagnosis in surgical disorders.

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PSYCHOSEXUAL DEVELOPMENT IN HEALTH AND DISEASE. Edited by Paul H. Hoch, M.D., New York State Psychiatric Institute; Columbia University, College of Physicians and Surgeons; and Joseph Zubin, Ph.D., New York Psychiatric Institute; Department of Psychology, Columbia University. The Proceedings of the 38th Annual Meeting of the American Psychopathological Association, held in New York City, June, 1949. Grune and Stratton, New York, 1949. $4.50.

Being the proceedings of the thirty-eighth annual meeting of the American Psychopathological Association, this volume is difficult to review critically. The keynote of the meeting would seem to have revolved around the Kinsey Report, and most of the contributions deal in one way or another with the reliability and implications of this report. Psychiatrists, psychoanalysts, and anthropologists all have contributed, and the presentation of their various points of view is very interesting. It is difficult to fit some of the papers into the general scheme, and apparently each contributor is inclined to ride his particular hobby, but many of the chapters are clear expositions of the point of view of the writers, and well worth reading. Obviously Dr. Kinsey, whether he be praised or damned, has made a deep impression on workers in this field, and I can think of no better way for the physician to form his opinion than to read this book with its presentation of widely divergent approaches.

* * *

CLINICAL CHEMISTRY IN PRACTICAL MEDICINE. By C. P. Stewart, M.Sc. (Dunelm.) Ph.D. (Edin.), Reader in Clinical Chemistry, Univ. of Edinburgh; and D. M. Dunlop, B.A. (Oxon.), M.D., Christison Professor of Therapeutics and Clinical Medicine, University of Edinburgh. Third Edition. The Williams and Wilkins Company, 1949. $5.00.

This book has the commendable idea of summarizing the various aspects of clinical chemistry in one small volume. Unfortunately it falls short of its objective. There are two other texts on clinical chemistry which do the job better.

In this volume there is too much generalization, too little practical information and too much omission. For example, some tests are detailed in the body of the book, others are in appendices at the rear and others of equal value are omitted. There is no bibliography so that one does not know what methods and standards the authors are using. Twenty-eight pages are given to gastric function—almost entirely to gastric analysis—while only 23 pages are given to all the liver function tests. There is no mention of the blood diastase test for acute pancreatitis. The urinary diastase is discussed.

On the favorable side it should be mentioned that many specific aspects of clinical pathology are discussed in clear, concise fashion. There are also useful tables for the practitioner to look up such items as the normal chemical composition of various constituents of the blood and urine with their variations in disease.

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Chemotherapy in Viral and Rickettsial Disease

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SUMMARY

Aureomycin and chloromycetin have now been used in a number of viral and rickettsial diseases and have gone far toward fulfilling their original promise. In local trials aureomycin has been shown to be a very effective drug in primary atypical pneumonia, and a valuable drug in Q fever. A small number of cases of psittacosis appear to have responded favorably to aureomycin. The search for chemotherapeutic compounds which may be effective in other viral diseases has been sharply stimulated by these developments.

At the time of the meeting of the California Medical Association in April of 1948 there were rumors that the whole outlook in the treatment of rickettsial and, perhaps, some viral diseases was about to be transformed. These arose from reports on experimental trials with two new antibiotic drugs, chloromycetin and aureomycin. During the ensuing year these drugs were tried by numerous groups of workers in a variety of diseases, and it is now safe to state that both have gone a long way toward fulfilling their promise.

Prior to 1948 the only drugs of proved effectiveness against viral diseases of man were the sulfonamides and penicillin.* These had a relatively limited field of usefulness in certain diseases caused by the largest viruses. Sulfonamide drugs had been found useful in trachoma and inclusion conjunctivitis, against two strains of psittacosis virus, and in lymphogranuloma venereum. Penicillin, in large doses, had been shown to be effective in psittacosis.

In the rickettsial field paraminobenzoic acid had been shown to modify the course of several diseases, but its effectiveness was relatively low. Streptomycin had shown some promise in experimental animals, but had not produced any startling results in human infections. Extensive search had failed to disclose other compounds which were both effective and safe for use. The viruses of medium and small size remained unaffected by chemotherapeutic agents.

It is not within the scope of this paper to cover all the reported trials of aureomycin and chloromycetin in viral and rickettsial diseases. It is sufficient to state that there is now evidence that the former is effective in Q fever, typhus, Rocky Mountain spotted fever, rickettsialpox, lymphogranuloma venereum, psittacosis, and primary atypical pneumonia, and that the latter is effective in the rickettsial diseases listed above and in scrub typhus as well. Emphasis in this presentation will be placed on data taken from local investigations which illustrate the effectiveness of aureomycin and on a discussion of the significance of recent developments. The data on aureomycin in primary atypical pneumonia, Q fever, and psittacosis are taken from the combined

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Presented before the Section on Public Health at the 78th Annual Session of the California Medical Association, May 8-11, 1949, Los Angeles.

From the Viral and Rickettsial Disease Laboratory of California State Department of Public Health, Berkeley.

*For references in this field prior to 1948 the reader is referred to "Viral and Rickettsial Diseases of Man," edited by T. M. Rivers, J. B. Lippincott Co., Phila., 1948. The more recent literature has been reviewed by Brainerd, H. D., Lennette, E. H., Meiklejohn, G., Bruyn, H. B., and Clark, W. C. The Clinical Evaluation of Aureomycin, Proceedings of the Second National Symposium on Recent Advances in Antibiotic Research. J. Clin. Invest., 28:992-1005, Part I (Sept.), 1949.

studies of the Viral and Rickettsial Disease Laboratory of the State Department of Public Health and the Infectious Disease Laboratory, San Francisco Hospital.

PRIMARY ATYPICAL PNEUMONIA

A sharp increase in the incidence of this most common form of viral pneumonia has provided an excellent opportunity to evaluate aureomycin. More than 50 patients with this diagnosis have been treated since last fall. Of these 50, 22 were included in a carefully controlled study. The remainder were treated in various areas without controls. It might be noted that the literature on aureomycin is somewhat remarkable in that none of the work reported to date has been controlled in a satisfactory manner.

Considering first the uncontrolled series, the response in these patients has been so uniformly favorable that, when the data obtained are combined with those from similar reported series, one would have to be extremely cynical to hold that the drug was not effective. Rapid symptomatic improvement followed by defervescence within from one to three days has been the rule. One is justified in withholding judgment on the effectiveness of the drug only because the course of primary atypical pneumonia is subject to such pronounced variation and because recovery without treatment occurs so frequently soon after medical aid is sought. It is for this reason that the results of a controlled study are of particular interest.

The occurrence of cases of primary atypical pneumonia in large numbers at Fort Ord during the winter of 1948-49 made such a study possible. Under the auspices of the Commission on Influenza of the Army Epidemiological Board patients admitted to the Station Hospital with primary atypical pneumonia of a relatively severe degree were treated alternately with aureomycin or penicillin. Penicillin was used in the control group because it was considered advisable to cancel out any therapeutic success which aureomycin might have if patients with bacterial pneumonias were inadvertently included in the study group. There is convincing evidence that penicillin does not alter the course of the great majority of cases of primary atypical pneumonia. The criteria used in the selection of patients are included in a detailed report on this study.[1]

In the 20 patients composing the penicillin-treated group the duration of the illness followed the pattern previously observed in untreated patients. Approximately one-third became afebrile within 72 hours. The remainder continued to be febrile for longer periods of time, exceeding five days in seven instances, with a maximum in one individual of 23 days after initiation of treatment. Twelve of the 20 patients in this group were shown to have cold hemagglutinin titers of 1:32 or more.

In contrast, of 18 patients treated initially with aureomycin, 13 were afebrile within 48 hours, four more within 96 hours, and a single patient within 120 hours. Symptomatic improvement was observed considerably earlier than defervescence. Clinical relapses were observed in three patients after aureomycin was discontinued. In each instance prompt recovery followed reinstitution of aureomycin therapy. In an additional group of four patients, who had been treated initially with penicillin and had become alarmingly ill while receiving this drug, prompt recovery followed within 48 hours after aureomycin was substituted for penicillin.

The results of this study leave little doubt that aureomycin is an exceedingly effective chemotherapeutic agent in the more severe cases of primary atypical pneumonia. Responses obtained compare favorably with those observed in cases of pneumococcal pneumonia treated with penicillin. The ineffectiveness of the latter drug in primary atypical pneumonia is well brought out by the results outlined. It is reasonable to suppose that aureomycin will be effective in milder cases of primary atypical pneumonia and may prove useful in those upper respiratory infections which are caused by the same virus.

Q FEVER

A preliminary report on the use of aureomycin in Q fever has already been published. The results obtained in a group of 15 acutely ill patients were generally favorable, and in only one instance was there a frank therapeutic failure. Relapse was noted in two patients in this group after treatment was stopped.

Treatment of a larger group of patients since that report was prepared has made it clear that the therapeutic margin of aureomycin in Q fever may be narrow and that, even with combined therapy using large oral and intravenous doses of the drug, a certain proportion of therapeutic failures may occur. Relapse also occurs in a certain proportion of cases. It is, of course, possible that strains of Coxiella burneti may vary widely in sensitivity to aureomycin in the same way as do many bacteria. Experience to this time indicates that aureomycin in Q fever is a useful, although by no means infallible, drug. Preliminary trials with chloromycetin are encouraging, but have not yet progressed to the point where evaluation is possible.

PSITTACOSIS

Three patients with diagnosis of psittacosis have been treated with aureomycin. In each instance prompt improvement has been observed following institution of aureomycin therapy. This is a very small number of cases, but the severity of untreated psittacosis in persons in the upper age groups is so uniformly high that the results carry considerable weight. It might be noted that in experimental studies aureomycin appears to have a margin over penicillin, which is also effective in human psittacosis when used in adequate dosage.

DISCUSSION

Results of the kind outlined herein, taken with those reported from other sources, point up the fact that previously held notions about the inaccessibility of intracellularly-situated infective agents to chemotherapeutic drugs are no longer tenable. It is true that the rickettsiae and the psittacosis-lymphogranuloma group of viruses represent relatively large agents which may be closer in metabolic requirements to certain of the bacteria than to the smaller viruses. However, it cannot be disputed that they are organisms which, to date, have been shown to grow only within the living cell. The argument that viruses could not be reached for this reason is thus not valid.

Despite the fact that effective and safe drugs have not yet been found for the numerous viruses of medium size, such as influenza, or small size, such as poliomyelitis, the outlook has become considerably more promising. With those agents which attack tissues other than those of the central nervous system the prospects are, of course, better, because the potentialities of tissue regeneration are high and all that appears to be needed is a drug which can hold the infective agent in check until immunity develops. The neurotropic viruses pose a special problem, because it has been shown that dissemination of these viruses is widespread throughout irreplaceable nervous system tissues by the time clinical illness is apparent. Thus dramatic results from chemotherapy appear less likely. Chemoprophylaxis, on the other hand, may prove to be an effective procedure.

It might be noted that the investigations which have led to these advances have followed two general lines. One is scientific, and has pursued the study of viral and cell metabolism in an effort to obtain clues pointing to the accessible points of attack. The other has been a systematic screening of innumerable chemical compounds and antibiotic substances with a view to finding drugs which will be both effective and safe. To date the latter method has been the more rewarding and, in point of fact, all antibiotics in use at this time have developed from this type of approach. As knowledge increases, it is to be hoped that the former approach may in time prove to be equally or even more productive.

REFERENCE

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Acute Coronary Thrombosis

George E. Burch, M.D., *New Orleans*

ALTHOUGH interest in investigation of cardiovascular diseases has grown in recent years with increased incidence of cardiac disease, there have been few outstanding new developments in acute coronary thrombosis and myocardial infarction. One of the most important recent contributions has been the introduction of penicillin therapy in bacterial endocarditis and the more accurate identification and localization of infarction by unipolar precordial exploratory electrocardiography. Because no fundamental data concerning the solution to the well-known clinical problems of this disease have yet been obtained, this discussion will include only the diagnosis and the management of uncomplicated acute coronary thrombosis.

Since mismanagement may aggravate an already highly morbid state, it is essential that a complete, accurate diagnosis be made on the basis of over-all clinical and laboratory findings. A careful investigation should be conducted whenever the slightest suggestion of this disease presents itself. Too frequently such a diagnosis is overlooked because of the popular, although erroneous, idea that this is a disease of older people, beyond the age of 40 years,[13, 17] and because the incidence is higher in white males than in any other group.[6,11] Actually it may attack the young of either sex and color.

SIGNS AND SYMPTOMS

Severe, vise-like pain in the substernal and precordial areas, the most characteristic manifestation in the acute stage of the disease, is present in about 60 per cent of cases and is variable or absent in the other 40 per cent. Though usually referred to the ulnar side of the left arm, the left side of the neck, occipital region, or upper mid- or left abdominal regions, it may, when unusually severe, be felt on both sides of the neck, both arms, and the posterior portion of the thorax. It lasts 15 minutes or longer, gradually subsides over a period of 24 hours or more, and does not respond to nitroglycerin, amyl nitrate or rest.

Dyspnea and hyperesthesia of the precordial region are not uncommon. Occurrence of vomiting and associated dyspepsia often leads to the erroneous diagnosis of "indigestion" which is so frequently made, especially in young people. Sweating, pallor of the facies, and occasionally cyanosis may be noted. Associated sinus tachycardia or arrhythmias, such as premature contractions, paroxysmal tachycardia, auricular fibrillation or heart block, may produce palpitation. Other clinical manifestations, such as rapid, thready feeble pulse; cold, clammy skin; pallor; weakness; and decreased arterial blood pressure, all suggestive of peripheral circulatory collapse or shock, may be present. If pericarditis develops, due to an infarct involving the anterior epicardial surface, a pericardial friction rub may be heard. Signs and symptoms of left and/or right congestive heart failure may complicate the picture: basal pulmonary rales, edema of the lower extremities, hepatic enlargement and tenderness, ascites, and generalized venous hypertension. Acute congestive failure may occur in acute coronary occlusion, although chronic failure is not ordinarily seen early. Fever and elevated erythrocyte sedimentation rate usually appear by the second day. The leukocytic count may reach 10,000 or 15,000 and the percentage of polymorphonuclear leukocytes is increased. All these last three signs disappear within one to four days in uncomplicated cases.

A valuable diagnostic aid in myocardial infarction is the electrocardiogram. The precordial region should be explored thoroughly in any patient with clinical manifestations suggestive of myocardial infarction, in order to establish the diagnosis and determine the extent of the lesion.[5, 16] A single precordial lead cannot exclude infarction.

Whenever the diagnosis is doubtful or when the picture resembles that of acute coronary occlusion, the patient should be treated for myocardial infarction. Meanwhile, efforts at establishing a definite diagnosis should be continued and treatment instituted according to the final conclusion reached. Important clinical states to be considered in the differential diagnosis include angina pectoris, pulmonary embolism, spontaneous pneumothorax, acute abdominal disease, dissecting aneurysm, acute pleuritis and acute pericarditis.

Although the diagnosis of coronary occlusion without myocardial infarction is definitely established only by postmortem examination, this disease should be considered when there is prolonged characteristic substernal pain without associated evidence of infarction; sudden, rapid onset of the anginal syndrome; or sudden, rapid increase in the frequency and severity of anginal attacks in a patient in whom this disease is known to exist.[1] Coronary occlusion with and without myocardial infarction must be differentiated from coronary insufficiency.[7, 12] Myocardial infarction may, of course, occur without postmortem evidence of coronary occlusion. Adequacy of collateral circulation determines the degree of myocardial infarction following coronary occlusion.[4, 14]

Presented before the Second General Meeting at the 78th Annual Session of the California Medical Association May 8-11, 1949, Los Angeles.

From the Department of Medicine, Tulane University School of Medicine and Charity Hospital of Louisiana at New Orleans.

TREATMENT

Most important in the treatment of uncomplicated acute coronary occlusion is immediate mental and physical rest. To alleviate pain and the feeling of apprehension in the early hours of illness, to induce relaxation, and thus reduce the load on the cardiovascular system, at least 0.016 gm. (0.25 gr.) of morphine should be administered immediately. This should improve the sinus tachycardia and decrease the cardiac rate when due to psychic disturbances. This drug may be given rather freely in relatively large doses in the beginning, the usual precautions against addiction being observed, of course. Other sedatives should be used only when definitely indicated. In the later stages restlessness and insomnia may make their administration necessary. Phenobarbital, 0.066 gm. (1 gr.) two or three times daily or late in the evening, may be given, or other commonly employed sedatives may be used as indicated. The sodium-containing drugs should be avoided.

If the patient is dangerously ill and is already at home, it is advisable to permit him to remain there rather than take the risk of causing further complications or even a fatal outcome by the excitement of moving him. Furthermore, improved facilities for home care now available offer an advantage to the patient who is more comfortable in his own home and who might worry excessively about the financial burden incident to hospitalization.

Pleasant, quiet surroundings are essential. At all times the physician, nurse, and other attendants should conduct themselves in a calm, cheerful manner and should suggest by their behavior their complete confidence in a favorable outcome. Movement of the patient should be reduced to a minimum by efficient nursing. Any cause for anxiety, excitement, or fear on the part of the patient should be avoided. The importance of mental relief from financial, domestic or other difficulties during illness as well as throughout the convalescent period cannot be overemphasized. At first visitors should not be permitted, although a limited number may be allowed as the patient improves. Light reading and non-exciting radio programs may also be provided later.

The temperature and humidity of the patient's room should be comfortable, with avoidance of overheating and overcrowding, both of which tax the cardiovascular system further. A room temperature of 70° F. in winter and 75-78° F. in summer, with a relative humidity of 50 to 60 per cent, is usually ideal. Although a patient who has received large doses of morphine may not be able to detect an ordinarily uncomfortable environment, a room which is comfortable to the attendants is usually satisfactory. An oxygen tent with air-conditioning is helpful in warmer climates.

Although the duration of bed rest is a controversial problem, until further definite evidence is available, it is advisable to keep the patient confined to his bed for at least six weeks rather than permit him to become ambulatory prematurely. Ten to 14 days is required for the transition from bed rest to ambulation, since the metabolic and physiologic changes produced by bed rest require four to six weeks to revert to normal for the ambulatory state.[6]

If there is any suspicion of cyanosis, oxygen should be administered to insure complete saturation of the arterial blood. Concentrations greater than 55 per cent are liable to be toxic. Though it may be given in a tent, by nasal catheter or by mask, the most desirable method of administration is an oxygen room, since it is less disturbing and more comfortable for the patient and assures oxygen content. This therapy should be continued until cyanosis and pain disappear and definite signs of improvement become evident; too early discontinuance is inadvisable.

There is usually a tendency on the part of the physician to overtreat the patient with various questionable drugs, in an attempt to "do something" for him. This may cause irreparable damage, and therefore only those measures definitely known to be beneficial should be used. The patient should be handled cautiously with only the minimum amount of disturbance, since rest is so essential to the best therapeutic results. Digitalis should be reserved for complications, such as congestive heart failure, auricular fibrillation or auricular tachycardia which cannot be controlled by other measures. It is not indicated in uncomplicated coronary occlusion. Though there is some evidence that atropine affords benefit,[8] it is known to inhibit vagal activity and accelerate the cardiac rate unfavorably when given in pharmacologically active doses. Quinidine is not indicated in uncomplicated coronary occlusion and should be employed only for complicating cardiac irregularities, such as paroxysmal tachycardia, frequent premature contractions, auricular flutter and auricular fibrillation.

The efficiency of coronary vasodilators is still controversial,[2, 8, 15] there being no definite evidence of any significant effects of these drugs. Because their value is so doubtful, only those known to be free from any serious side effects should be tried and then only by the oral route. Theophylline with ethylene diamine (aminophylline), 0.1 to 0.2 gm. (1½ to 3 gr.) three to four times daily, may be administered orally but should be discontinued if any discomfort, such as dyspepsia, ensues. It should be given intravenously only as a heroic measure. Some workers consider papaverine hydrochloride to be effective,[10] but its value, like that of the xanthines, has not been generally accepted. Whereas they may offer temporary relief, the rebound following coramine, metrazol, caffeine sodium benzoate and other such stimulants is probably more deleterious than any favorable action they may produce.

Until the effects of heparin and dicoumarol become definitely established, they should be used only when specifically indicated. Studies by Wright and his co-workers,[18] who advocate their immediate use as prophylaxis against thromboembolic complications, revealed that the case fatality rate was decreased when they were used cautiously with adequate determination of prothrombin time.

General measures are usually sufficient to control the peripheral circulatory collapse or shock so commonly accompanying acute coronary occlusion. Plasma or whole blood should be administered if definite shock occurs, with extremely low blood pressure and greatly diminished peripheral arterial pulsations persisting for a period of 60 to 90 minutes without signs of improvement. In certain complicated states infusions of fluids, sodium chloride or glucose solutions may be indicated.

Although the patient's diet need not be of great concern during the early days of illness, he should be encouraged to sip nourishing sweet liquids and eat candies if he is able to do so. Foods which might induce dyspepsia, nausea or vomiting should be avoided, particularly since the last of these symptoms may be responsible for cardiac death. As the patient improves, his diet may be augmented. Frequent small feedings of a liquid or soft bland diet which does not disturb his digestion should be provided. Fatty foods should be prohibited. During the first few days or until evidence of congestive heart failure disappears, sodium content should be limited to not more than 1.7 gm. available sodium chloride daily. In the absence of signs of congestive failure, sufficient sodium chloride may be allowed to render the food palatable, although salty foods should not be permitted. Obesity should be corrected gradually after the patient is well on the way to convalescence. Water given orally as the patient desires, even in the presence of congestive heart failure, is not injurious as long as sodium is limited.

Tobacco should be prohibited, since the sacrifice to the patient is outweighed by the possibility of damage to the heart.[3] Mild laxatives may be given to avoid straining at stool. The importance of careful, efficient nursing should be reiterated. Throughout the illness it is important to observe the patient closely in order to evaluate the progress of therapy and to institute immediate countermeasures should any complications occur; postconvalescent[9] and all future management is likewise important.

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Difficulties in Evaluating Systolic Murmurs in Children

With Special Reference to the Functional Systolic Murmur

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SUMMARY

As a guide in distinguishing between organic and functional systolic murmurs, five characteristics of a murmur should always be noted, namely, (a) the location of maximal intensity of the murmur; (b) the intensity of the murmur itself; (c) the character of the murmur, that is, whether it is blowing, rumbling, rough or harsh; (d) the transmission of the murmur; and (e) the duration of the murmur and its time within the cardiac cycle.

Functional systolic murmurs may be found at any of the "valve areas," are usually faint to moderately loud, are usually soft and blowing in quality, are usually only slightly transmitted, and are usually not heard immediately following the first heart sound.

In doubtful cases, those in which history and physical examination alone are not sufficient to make a diagnosis of functional systolic murmur, further studies should be undertaken to determine the presence or absence of organic heart disease.

Until a diagnosis of organic heart disease can be made with reasonable certainty, there should be no restriction of activity imposed, because of the likelihood of the development of cardiac neurosis in the patient.

FOR years the problem of the systolic murmur has been one of great interest for those concerned with cardiology and the proper interpretation of cardiac murmurs, and the pendulum has swung from one end of the arc where all systolic murmurs were considered indications of heart disease to the other end where practically none of the systolic murmurs were considered indicative of heart disease. Somewhere between these two points of view lies the real answer. Knowing full well the difficulties that lie in wait for the physician in attempting to interpret the systolic murmur, and knowing also the wide differences of opinion that exist on this question, the author has undertaken to present a few observations which may be of help as a guide to evaluation of the systolic murmur, with particular reference to the "functional" systolic murmur in childhood and adolescence. This is not a statistical survey, but rather a review of the findings as they have been observed in the Children's Cardiac Diagnostic Clinic of the San Francisco Health Department.

As more and more children of primary and secondary school age have been referred to the clinic, it has been noted that the parents of an impressively large number of patients have been told that the children have a heart murmur, and by inference, cardiac disease. While many of these children have been found to have murmurs of organic origin, there have also been many with systolic murmurs who have been found to have no evidence of organic heart disease after careful study by history, physical examination, fluoroscopy, and electrocardiography. Many of this latter group have had some or considerable restriction in their activities, have had their schooling interrupted, have been made to feel that they are different from other children, and have been a considerable source of worry to their parents. Therefore there is good reason for presenting a review of the findings which may assist the practicing physician in evaluating these functional murmurs, thus aiding in protecting both the child and his family from needless invalidism, both physical and mental.

"It is of great importance to recognize and remember that most systolic murmurs do not indicate the presence of any organic heart disease. Nevertheless, serious diagnoses and bad prognoses have frequently been made largely on the basis of such murmurs. On the other hand it should be recognized that even slight systolic murmurs, except in the pulmonary valve area, are not normal: they demand study as to their cause. Often they are found to be unimportant 'functional' murmurs, but frequently they are evidence of the presence of some important or serious disease acting on the circulatory apparatus, even though there be no heart disease itself." (Paul D. White)[4]

This presentation is concerned with those murmurs which fall into the category of the functional murmur. Where facilities are not available for complete study, the physician must rely in large part on the history and the physical findings, chiefly auscultation; but this does not mean that further studies should not be carried out, elsewhere if necessary, should there be any doubt as to whether a murmur is functional or not. Indeed, to rely entirely on auscultation would be to lose sight of medical goals, but at least a physician should be able to form an opinion as to the type of systolic murmur present. Further studies can then be carried out if they seem indicated.

Auscultation depends on the auditory acuity of the observer and on his experience. Experience in auscultation is a most important factor in attempting to decide whether a murmur is functional or not. Before any pathological process can be recognized, the range of the sounds of the normal heart should

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be well understood, and therefore it is well to seek as much information as possible from all patients one may see. By careful auscultation of the heart, even though there is no clinical evidence suggesting cardiac disease, one may listen to many normal hearts and learn the range of the normal sounds. This procedure is of inestimable value if one is to familiarize himself with the pitch, intensity, quality, and location of heart sounds and murmurs, as well as to school himself to recognize the third heart sound, which is often confused with a murmur and yet is a normal auscultatory finding in many cases.

In evaluating any murmur, it necessary to enumerate several characteristics. First, after noting whether the murmur is systolic or diastolic in time, the location of the maximal intensity of the murmur must be noted, that is, in which of the several "valve areas" the murmur is best heard. The loudness of the murmur itself should then be noted, that is, whether it is very faint or very loud or of some intervening intensity. Levine[3] has graded murmurs according to their intensity from grade one through grade six, the latter being the loudest. This is a convenient method of deciding the intensity of the murmur but the interpretation varies with each individual examiner, depending on his experience. Just as convenient, and a method which for many examiners is easier, is to describe a murmur as to whether it is very faint, moderately faint, moderately loud, or very loud; but whichever method is used, it should be used consistently, so that one may always compare the intensity of murmurs at different times in the same patient. This gradation is very important in deciding whether one will consider a murmur functional or not. Almost all functional murmurs are faint murmurs.

The quality of the murmur is of great importance. It should be classified as blowing, rumbling, rough, or harsh. Functional murmurs are blowing in character, as well as being faint.

The transmission of the murmur is also of importance. Transmission is determined by the loudness of the murmur together with the nearness of the heart to the stethoscope. In general any murmur which is transmitted fairly widely is a loud murmur; functional murmurs are not loud, and therefore are not transmitted as a general rule, at least not over a wide area.

The time during systole that the murmur is heard, and its duration, should be noted. Functional murmurs seldom begin with or immediately follow the first sound; there is almost always a short gap between the end of the first sound and the beginning of the faint blowing functional systolic murmur. This has been pointed out by Evans[1] in his phonocardiographic studies of heart murmurs.

With these particular characteristics in mind, one may evaluate with more accuracy the auscultatory findings in an attempt to differentiate functional from organic murmurs. Again it should be emphasized that auscultatory findings alone cannot always give the final answer as to whether a murmur is functional or not, but certain characteristics are helpful in guiding the physician to some conclusion.

The functional murmur at the mitral, or apical, area is in general located at the cardiac apex, or just medial to the apex. The murmur ranges in intensity from barely audible to faint or moderately faint, but it is never a loud murmur. It is not harsh or rough, but has a blowing quality, which may also be described as a whiff, should the murmur be very faint. It is heard in mid-systole or toward the end of systole. If there is no appreciable gap between the first sound at the apex and the beginning of the murmur, even if the murmur is quite faint, suspicion should be aroused that the murmur is organic, and further studies should be made to rule out this possibility. In the presence of tachycardia, it may be very difficult to determine the presence or absence of this small gap, but every effort should be made to detect such a gap. Some murmurs in the mitral area are present only in the last half of the systole, and if they are faint, non-radiating, and blowing, they are most likely functional in origin.

The changes in the auscultatory findings which can be brought about by changes in respiration are of considerable value, but not, of course, pathognomonic of a functional murmur in the mitral area. Functional systolic murmurs, unlike organic systolic murmurs, frequently can be made to disappear by complete deep inspiration. This is not always true but in many cases can be demonstrated. If the murmur does not completely disappear, it usually becomes faint enough so that it can then be classed as a very faint blowing murmur. As the patient is allowed to breathe normally again, the murmur will reappear, or will become louder than it was during deep inspiration. However, it never becomes a truly loud murmur, but will regain the intensity of sound which originally suggested the presence of a functional murmur. Frequently during the diminution or disappearance of the sound, the pulse rate will become considerably slower. This is a normal phenomenon, particularly in young children. One other feature which can be found frequently in functional systolic murmurs during deep inspiration is that the murmur does not reach its full intensity, even though softer than during normal respiration, until after two or three beats have been heard. This is particularly true if auscultation is carried out while the breath is being held in deep inspiration. Organic systolic murmurs may also become less pronounced during deep inspiration, but they do not disappear completely. The loud, and particularly the rough components of the sound still remain, although somewhat diminished.

Change in position of the patient, that is, assumption of the upright or recumbent position, also influences functional systolic murmurs more than organic systolic murmurs. Without having the patient consciously change his respiration, and with the stethoscope held in approximately the same position on the chest, it has been found that functional systolic murmurs are slightly louder in the recumbent position than in the upright position. Usually the opposite is true with organic systolic murmurs. This variation should always be looked for in any cardiac examination. It has been found that on numerous occasions organic heart disease has been missed simply because the examiner did not examine the patient in the recumbent as well as in the upright position. It is well to note in passing that occasionally mid-diastolic murmurs and frequently presystolic murmurs at the apex have been overlooked because auscultation was not carried out with the patient in the left lateral position as well as in the two other positions mentioned.

Transmission of the functional systolic apical murmur is almost always minimal. This is of considerable help, since in contradistinction, organic systolic apical murmurs are almost always transmitted toward or into the axilla, or the back, or both. They are rarely if ever transmitted upward. If there is any transmission present in a suspected apical functional systolic murmur, the patient should be examined in both the recumbent and upright positions with special reference to the transmission of the murmur. It has been found, more often than not, that in the upright position the transmission, if any, of the functional systolic murmur tends to be toward the axilla, while in the recumbent position, the radiation will shift so that the murmur, becoming slightly more intense in the recumbent position, will also tend slightly to radiate upward toward the left of the sternum, rather than to the axilla. There will usually be no transmission to the back in either the upright or the recumbent position.

A functional systolic murmur to the left of the sternum is usually less perplexing than that found at the apex. It may be somewhat louder than that found at the apex, but it is never harsh or rasping in quality. It is blowing in quality, and extends from the third to the fifth interspace, being maximal in the fourth interspace. The murmur is slightly higher pitched than that in the mitral area. Unlike the murmur in the mitral valve area, it is often difficult or impossible to decide whether this murmur begins with or immediately after the first sound, but if it can be heard after the first sound with a gap between the onset of the murmur and the end of the first sound, there is a good likelihood that it is a functional murmur. Phonocardiographic studies[2] have demonstrated, however, that the functional murmur begins after the first sound.

Usually, deep inspiration does not abolish this type of functional systolic murmur, probably because the sound originates close to the chest wall, but some faint systolic murmurs in this area will disappear completely with deep inspiration. Position of the patient has less influence on the intensity of this murmur than on the functional systolic murmur at the apical area, but here again it can often be determined that the murmur will become somewhat more intense in the recumbent position.

As has already been noted, this functional systolic murmur has a wider area of transmission than that of the apical area, and may at times even radiate to the lower end of the sternum; but it still remains a faint blowing type of murmur, with its maximal intensity at or very near the fourth left interspace. This should be readily heard on careful auscultation. The murmur of interventricular septal defect which is heard in the same area is differentiated by its loudness, by its rough or harsh quality, and by the presence of a palpable thrill in most cases. In passing, it may be stated that the murmur of interauricular septal defect, when it is present, is also heard in this area. Like the functional systolic murmur, it is usually soft and blowing in quality and may be indistinguishable from a functional systolic murmur. It is mentioned here chiefly because of the fact that the lesion is frequently overlooked, and, if thought of during a cardiac examination, will be more readily found. Further studies including fluoroscopic and electrocardiographic examinations are necessary to establish this diagnosis.

A functional systolic murmur in the aortic area, that is, in the right second interspace, is again soft and blowing in quality, and varies in intensity from faint to moderately loud. It is never harsh or rough in quality. It may occupy the whole of systole or any part of it, but is usually considerably less pronounced at the end of systole. It is little influenced by changes in the phase of respiration; to a lesser degree than the functional systolic murmur to the left of the sternum, it may be intensified in the recumbent position. Aortic functional systolic murmurs may radiate to the apical area. However, the higher pitch of the murmur will help to distinguish it from the functional systolic murmur of the apex, and in most cases it can be traced from the aortic area to the apex, with its maximal intensity located in the aortic area. Pulmonary functional systolic murmurs may also radiate to the aortic area, and be considered aortic murmurs, but careful attention to the area of maximal intensity of the two murmurs should distinguish them. Attention should be paid to the intensity of the aortic second sound; it may frequently be less intense than the first sound, but it is never decidedly diminished or absent as is so frequently the case with the murmur of aortic stenosis. There probably is, at some point in the course of the development of the murmur of aortic stenosis, a time when the systolic murmur associated with this disease is indistinguishable from that of a moderately loud early functional murmur, and in that case one could not be sure of the differentiation. But as the patient is observed and his progress is followed, the presence of an increasingly loud systolic murmur, together with the development of a decidedly diminished second sound and a palpable systolic thrill, will then permit the correct diagnosis. Hypertension, while not common in children, will produce a blowing systolic murmur in this area, the aortic second sound will be loud and eventually ringing, and the murmur will be chiefly in the latter portion of systole. Elevation of the blood pressure will be evident.

Pulmonary systolic murmurs are the commonest of all murmurs.[4] Pulmonary functional systolic murmurs are often moderately loud, but are blowing in quality. The pitch of the murmur is somewhat higher than that at the apical area, is very like that of the functional systolic murmur in the aortic area, and is often indistinguishable from the latter except in the location of its maximal intensity. The murmur is not rough or harsh in quality. It can be brought out more easily than any of the functional systolic murmurs in other areas by having the patient in the recumbent position, and can often be greatly intensified by having the patient in full expiration. In this latter case, the murmur may become surprisingly loud but still retain its blowing character. Deep inspiration, on the other hand, frequently causes complete abolition of the murmur. The pulmonary functional systolic murmur may radiate down the left border of the sternum or into the aortic area, but again careful auscultation should reveal the site of maximal intensity of the murmur. As a general rule, however, the pulmonary functional systolic murmur is fairly well circumscribed. In association with this murmur, there is frequently found a reduplication of the second sound in the pulmonic valve area, although this is not present in every case. Exercise will frequently accentuate a functional pulmonic systolic murmur; the murmur becomes less pronounced as the heart action becomes less forceful during the ensuing rest period.

Pulmonary hypertension may produce a systolic murmur in the pulmonary area which may simulate a functional murmur, the murmur being blowing in character and occupying all or part of systole. In this condition, the pulmonary second sound will be considerably louder than normal, and will usually be snapping with more pronounced reduplication than is usually found. Other changes in the heart will be found, and should be looked for when the abnormalities just mentioned are noted. Coarctation of the aorta may also produce a systolic murmur at the pulmonary area indistinguishable from the moderately loud pulmonary functional murmur, but other signs of coarctation will be found if searched for. Patent ductus may likewise produce a murmur similar to a functional systolic pulmonic murmur, but the murmur is louder than the functional murmur; there will also be an associated diastolic murmur heard in the same area, usually long and pronounced, without which a diagnosis of patent ductus should not be entertained, except possibly in very young children or infants. A palpable systolic thrill is almost always present in this condition.

In conclusion, it may be said that one of the greatest difficulties associated with systolic murmurs, especially in children, is the determination as to whether any given murmur is functional or organic. There are many differences of opinion regarding the interpretation of auscultatory findings of systolic murmurs in children. Those experienced in pediatric cardiology realize that infinite care is needed in the proper evaluation of such murmurs. Experience is an invaluable aid in deciding these problems.

In the author's experience at the Children's Cardiac Diagnostic Clinic, many children have been referred because of a systolic murmur which seemed to the author to be obviously functional; and on further studies, including a careful history, physical examination, fluoroscopy and electrocardiography, such proved to be the case. In such cases there was found to be no limitation of cardiac reserve, no enlargement of the heart, no abnormality of cardiac outline on fluoroscopy, and no deviations from the normal range in the electrocardiogram. In this group it seemed apparent that too little attention had been paid to the facts that could have been obtained clinically without extensive laboratory procedures. Fluoroscopy, blood studies, and electrocardiography were not necessary in this group of patients, although these examinations were carried out in the clinic for further proof that the murmur was functional. In this group of cases, the history and physical findings would have been sufficient to warrant a diagnosis of a functional systolic murmur, and much psychic trauma and expense to the patient and his family could have been avoided.

Another group of patients was seen in which it was suspected that the systolic murmur heard was functional in nature, but this could not be determined until further studies were carried out. In such circumstances, completion of studies to determine whether a systolic murmur is functional or not, is recommended. It is with regard to such murmurs that there is the greatest difference of opinion among experienced cardiologists. In cases in which doubt exists, auscultatory findings alone should not be relied upon. Even if results of all studies are negative, the patient should be carefully followed at frequent intervals for a period of years, since it is only by this means that the true nature of the murmur can be established. But if there is no evidence of cardiac disease after careful follow-up examinations, the patient should be told that such is the case, and no restriction should be imposed solely because of the presence of a murmur. Nor should restriction be imposed during the period of observation, since evidence of heart disease has not been established, and cardiac neurosis with its resultant loss of normal development of the child can easily be created. Most physicians probably have seen patients who have been confined to bed for a prolonged period of time because of the presence of a heart murmur, although the murmur was not organic but functional in origin. Such tragedies for patients and their families should be eliminated if physicians become more alert to the characteristics of a functional murmur, and make every effort, particularly in doubtful cases, to determine the actual presence or absence of cardiac disease, using careful history taking and physical examination as the starting point from which to proceed to further diagnostic tests as they appear necessary.

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Carcinoma of the Rectum

Low Abdominal Transverse Incision for Resection With End-to-End Anastomosis

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SUMMARY

On the basis of published studies of the lymphatic spread of carcinoma of the rectum, tumors lying as low as the anterior peritoneal reflection may be treated by segmental resection with end-to-end anastomosis. Statistics of five-year survivals in these published studies indicate that for tumors in such locations, a segmental resection offers the same chance for cure as an abdominoperineal resection.

The transverse low abdominal incision previously described by the author permits better exposure, facilitates the performance of anastomosis which can be made at a greater depth, and thus enables the surgeon to resect a wider margin distal to the tumor.

THE great advance in the treatment of carcinoma of the rectum and of the rectosigmoid junction dates back to the introduction by Miles of the abdominoperineal resection. While this procedure retains its superiority as a single method of attack on all lesions from the distal sigmoid colon to the anus, there has been a growing feeling among surgeons that in some cases the sphincter has been sacrificed unnecessarily. This feeling springs from a belief that, if the tumor is in certain locations, segmental resection with end-to-end anastomosis can be just as effective and yet leave the sphincter intact—an important consideration to the patient.

Opponents of segmental resection for cancer at or below the rectosigmoid junction—among them some of the outstanding surgeons of today—oppose the procedure on the ground that it is not sufficiently radical and therefore reduces the chances for cure. They hold that in addition to resecting the superior rectal group of lymph nodes, it is necessary (1) to remove the levators ani, thereby resecting the lateral lymph vessels, in order to avoid metastatic involvement, and (2) to deal with retrograde spread of the tumor by removing the entire rectum, including the anal canal.

However, investigators have developed apparently sound evidence that, with the growth located above the levator ani muscles, the lateral lymph vessels are not involved. Moreover, with the tumor so situated, it is practicable by segmental resection to remove the growth and an ample margin of cancer-free rectum distal to it.

Recent statistics indicate that abdominoperineal resection does not result in a significantly higher percentage of apparent five-year cures than does segmental resection in selected cases. In 1948, Dixon[4] reported 67.7 per cent five-year survivals for a series of 272 patients in whom end-to-end anastomosis had been performed. This is comparable with a composite of the results obtained by the more extensive procedure. Gray[6] reported that 15 of 31 patients treated by segmental resection were alive and well at the end of five years, a 48.4 per cent "cure" rate. It should be noted with regard to Gray's series that the 16 patients who died had either a far advanced lesion or a growth lying low in the rectum (below the reflection of the peritoneum); they were patients who in the more discriminate judgment of today would be treated by abdominoperineal excision.

In selecting patients for segmental resection, the usual avenues of dissemination of rectal carcinoma must be considered, especially the lymphatic route and direct extension. If tumor cells have been borne away by the blood stream, no surgical procedure can offer much hope of cure. All accepted operations for carcinoma aim at the removal of the neoplasm with its direct ramifications as well as the regional lymphatic nodes.

Black and Waugh[1] studied the extent of intramural extension of carcinoma of the sigmoid colon and of the rectum and found it to be less than half a centimeter. Their statistics indicate that direct extension of the tumor along the bowel wall does not constitute a serious problem.

The lymphatic spread of carcinoma of the rectum has been thoroughly investigated, with the use of a special clearing technique, by Gilchrist and David,[5] and subsequently by Coller, Kay and MacIntyre,[3] and by Glover and Waugh.[1] They all agree that the natural route for the lymphatic spread is cephalad; retrograde metastases occur rarely and only in advanced cases in which the superior lymphatic nodes have already been blocked by tumor cells. The most remote retrograde metastasis encountered by Gilchrist and David was 5 cm. below the primary growth. Out of 100 specimens examined by Glover and Waugh, only 3 per cent showed involved lymph nodes more than 2 cm. distal to the primary lesion. The lateral lymphatic vessels run along the levator ani muscles and drain the rectum at the level of their insertion. Coller, Kay and MacIntyre demonstrated that lateral spread can occur only in lesions located in the terminal 3 cm. of the rectum.

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Carcinoma of the anal canal obviously cannot be resected without including the sphincters in the block of tissue removed. Likewise, carcinoma arising in the terminal 3 cm. of the rectum is not amenable to segmental resection, since removal of the lateral lymphatics entails resection of the levator ani muscles. Not until a level is reached where the lateral metastases can be ruled out with reasonable certainty may one begin to think about preserving the sphincter. On the basis of the reported extent of retrograde metastases, it would appear that a distance of 4 cm. between the lower border of the tumor and the levator ani muscles would allow resection with a safe margin of 3 cm. and leave a cuff of the distal rectum for anastomosis. In practice, however, even the proponents of the segmental resection reserve this procedure for growths lying not lower than the anterior peritoneal reflection. In the early wave of enthusiasm over the preservation of the sphincter, the segmental resection was used for tumors lying too low by the present standards; local recurrences have occurred, tending to discredit this procedure even for more favorably situated growths. It should be borne in mind, however, that local recurrence is not unknown even after the more radical Miles procedure. The proximal spread of the tumor is not a deciding factor, since in either operation resection of the same length of the sigmoid and of the inferior mesenteric artery with the associated lymph nodes can be accomplished.

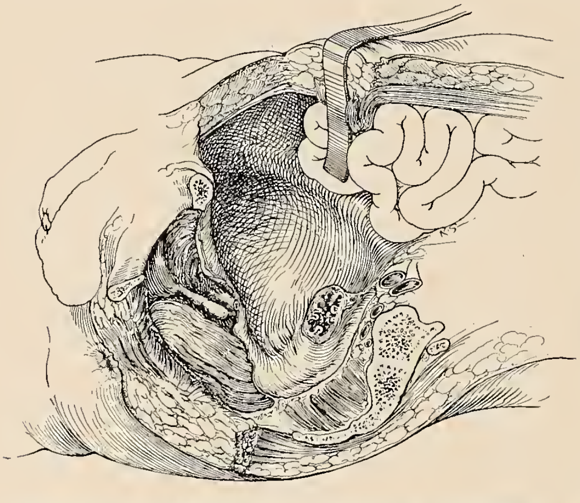

Figure 1.—Diagrammatic cross-section demonstrating the directness of the approach to the pelvic structures.

One practical problem remains: Can the surgeon resect sufficiently far beyond the tumor and reestablish the continuity of the bowel? One argument against the preservation of the terminal rectum is that, with his eye on the difficulty of anastomosing the bowel in the depth of a funnel, the surgeon is apt to skimp on the length of the rectum resected.

This difficulty can be overcome by the use of the low abdominal transverse incision introduced by the author in 1941;[2] it gives a wide exposure of the pelvis and permits anastomosis of the rectum practically at the level of the pelvic diaphragm without any difficulty. The ease of performing the anastomosis will encourage the surgeon to remove more than the minimum margin of rectum beyond the lesion, thus assuring optimal results.

The better exposure afforded by the transverse incision is accounted for primarily by the fact that the center of the incision, rather than its end, is over the operative field; obviously, the separation between the wound edges is maximum in the center. The greater diameter of the lower abdomen in the transverse axis and the absence of any tendency for the wound edges to approximate, even under light anesthesia, are also contributing factors; as a rule, no abdominal retractors are required.

The technique of the incision has previously been fully described.[2] Briefly, the skin incision is transverse, running just inside the pubic hair line, curving slightly laterally, and stopping two fingerbreadths from the anterior superior iliac spines. The aponeurosis of the external and internal oblique muscles constituting the anterior rectus sheath is incised in the same line. The inferior portion of the rectus sheath is dissected off the rectus muscles as far as their insertion into the pubis. The rectus tendons are then detached from the bone (without leaving any cuff for reattachment) and are reflected superiorly. The transversalis fascia and the peritoneum are opened transversely about 1 cm. above the bladder.

In closing the incision, the rectus tendons are sutured not to the pubis, but to the deep aspect of the rectus sheath. The rectus muscles should be pulled down gently, with no forcible attempt at ap-

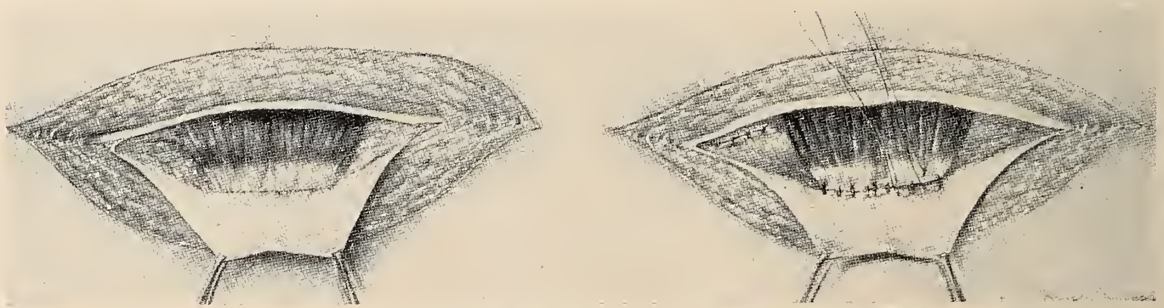

Figure 2.—(Left) The lower flap of the rectus sheath elevated to expose the tendinous ends of the recti. The dotted line indicates where they are to be divided. (Right) Showing suturing of the recti to the lower flap of the rectus sheath.

proximating them to the bone; the level of the suture line varies in different patients, depending on the tonicity of the muscles and the relative lengths of tendon and muscle below the incision in the rectus sheath. The rectus sheath is sutured in a routine fashion.

The postoperative advantages of the incision include greater comfort of breathing, coughing and turning in bed. The strength of the abdominal wall following this approach has been proved by the absence of dehiscence and a negligible incidence of postoperative hernia.

At this point a warning must be sounded regarding the somewhat similar Maylard-Bardenheuer incision which divides all structures, including the rectus muscles, in the same transverse line. The considerable incidence of hernia after this incision should be a sufficient deterrent to those who might be inclined to avoid the little additional dissection involved in detaching the rectus muscles at the point of insertion.

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A Study of Inflation of the Lungs of the Newborn

A Preliminary Report

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SUMMARY

There seems to be no reasonable doubt that the lungs in a newborn expand progressively during the first few days of life. Some degree of atelectasis seems to be perfectly normal. This is indicated by a number of roentgenographic studies (including those here reported); by the reported findings of pathologists; by the fact that in experimental animals the lungs inflated very unevenly; and by the fact that aeration of only a portion of the lung is needed for complete oxygenation of the blood. The relation of atelectasis to neonatal death is not entirely clear and is probably not always the same. The infant may die from other causes before the lungs are fully expanded. Atelectasis may develop secondarily to other debilitating conditions. The frequent coincidence of prematurity and extensive atelectasis is impressive. It may be that the lungs are so incompletely formed that they cannot expand. On the other hand, atelectasis and massive collapse in the adult is a serious condition and there seems to be no good reason to suppose that this cannot also occur in infants and be serious per se.

The air pressures found necessary to expand the lungs in rabbit fetuses were found to be about ten times what adult humans use in quiet respiration and were of about the same magnitude as the pressures found necessary to expand the lungs of stillborn humans. An attempt to produce atelectasis in newborn rabbits by chilling was most inconclusive. Atelectasis did develop in three of 15 animals used in the experiment, but the relation to chilling was not at all clear.

An obstetrician in Duluth made a study of stillbirths and neonatal deaths at Duluth hospitals over a period of 20 years. He found that the deaths from all causes had decreased materially during the 20 years, with two exceptions, namely, atelectasis of the lungs and malformations and abnormalities incompatible with life. A group of six physicians* decided to make a study of atelectasis. Three questions were posed: (1) Is atelectasis the cause of death in these infants? (2) Does premedication given to the mother favor atelectasis in the infant? (3) Is atelectasis after birth normal? The group has answered none of these questions, with the possible exception of the last one, and the problem, for the time being, has resolved itself into the study of the physiological expansion of the lungs in the newborn. This is merely a preliminary report of part of what the group is attempting to do.

A study of the literature indicates that many others have faced these questions and that, as yet, observers are not entirely agreed upon the answers.

Beck[1] reported upon 200 stillbirths and neonatal deaths in which 41.5 per cent showed nothing more than congenital atelectasis. Labate,[8] in an analysis of the causes of death in a group of 868 stillborns and neonatal deaths, listed pulmonary lesions as one of the three highest causes of death, but did not mention atelectasis among them. Bell[2] has expressed the opinion that atelectasis is not the cause of death in most infants showing this condition, but is merely an indication of weakness and debility secondary to other conditions which may cause death.

Potter and Dieckmann[10] reported upon a group of 17,500 infants with 25 deaths per thousand, equally divided between stillbirths and neonatal deaths. Twenty-five per cent of these deaths were assigned to prematurity and, in these infants, the lungs were almost invariably red-purple in color, uniformly firm in consistency and so airless that they sank in water. Microscopically, they usually revealed resorption atelectasis. Most of these infants had breathed promptly after birth but, within a few hours, gave evidence of respiratory distress. They became progressively more cyanotic, even when kept in oxygen, and finally died of respiratory failure. This picture was almost always limited to infants weighing less than 2,500 gm.

Wilson and Farber[13] did some excellent experimental work on the lungs of stillborn children and those dying shortly after birth, as well as on the lungs of living and dead animals. They concluded that atelectasis of the newborn should not be considered as a primary cause of death and that there must be some cause for the persistence of atelectasis. They found that a relatively great force is required to open the lungs the first time and decided that this resistance to expansion was due to cohesion of the moist surfaces of the collapsed air passages and the alveoli. They found that once the initial resistance

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was overcome, the lungs expanded with a much lower pressure. The initial resistance could be reestablished by aspirating the lungs forcibly or by allowing them to hang for a number of hours. They pointed out that there is another type of atelectasis which is due to incomplete development of the lungs. They found that pressure of as much as 350 mm. of water might be required to produce full distention of the lungs in stillborn babies. (Adults use a force of only 10 to 20 mm. in quiet respiration.)

Smith[11] found that pressure of 300 mm. of water may be necessary for expansion. He stated that some degree of atelectasis may be demonstrable in normal infants for a week after birth. Potter and Adair[9] also expressed the belief that aeration of the lungs in a normal newborn is gradual.

Gruenwald[6] differentiated three states of fetal lungs, namely, aeration, atelectasis and a third, which he called fluid-containing. He expressed belief that fetal atelectasis is a normal state of the lungs just before birth. He reported that true atelectasis is much more common in live-born than in stillborn children, and that the lungs of stillborns are much more apt to contain fluid because, in a period of anoxia, they have attempted to breathe in utero. Gruenwald measured the resistance of the lung tissue to expansion with both air and a watery fluid and found that the lungs expanded at a much lower pressure when fluid was used than when air was used. There was a more uniform expansion of the alveoli with fluid than with air. With the latter, expansion was not uniform: Some alveoli expanded fully and others not at all. There was no intermediate stage. The author studied 30 stillborn infants and 30 newborn infants up to three days of age. He found that live-born infants showed much less aspiration of amnionic fluid than the stillborns. He found commonly that some of the alveoli would be aerated while others were partially expanded with fluid.

Zettelman[14] agreed, after some experimental studies on animals, that complete atelectasis of the lungs is maintained until birth unless there is some degree of anoxia. Amnionic fluid is present normally in the larger air passages but is not normally present in the alveoli.

Farber and Wilson,[3] reviewing the literature concerning the nature of atelectasis in the newborn, concluded that expansion of the lung is not completed at the first breath, but that it takes several days and that a certain degree of initial atelectasis is physiological for several days after birth. Areas of incompletely formed pulmonary tissue are frequently present in premature infants, they concluded, and this is not true atelectasis.

Weymuller, Bell and Krahulik[12] made roentgenographic studies of 25 normal babies during the first 14 days of life. In only one was there evidence of atelectasis and this disappeared after 24 hours. Farrell[4] took roentgenograms of 159 infants within 48 hours of birth, most of them on the first day. No atelectasis was found in any. He stated that roentgenographically all of the lungs were fully expanded by the time the roentgenograms were made. On the other hand, Smith[11] cited findings from the Boston Lying-In Hospital that 18 per cent of the infants showed unexpanded areas in the lungs by roentgenography.

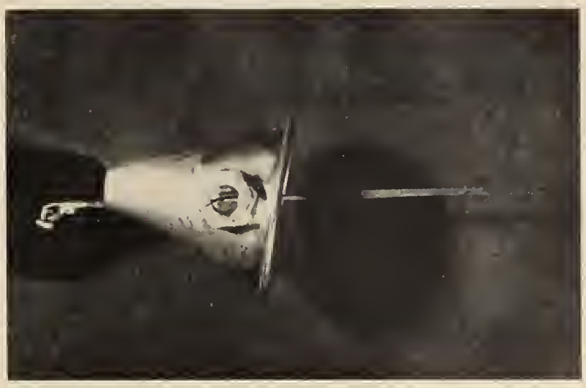

Figure 1.—Instrument for measuring the cohesive properties of nasal mucus. The narrow metal arm is mounted upon watch jewels to reduce friction. It balances without weights. The small silver plate suspended from the forward end is 10 square millimeters in area. In use, this plate is pressed into the mucous film on the floor of the nose and an appropriate weight is hung on the other end of the arm and moved back until the plate lifts free. The amount of pull required is then calculated from the weight used and the comparative lengths of the lever arms.

House and Owens[7] bronchoscopically examined 23 babies who had atelectasis. It is striking that 80 per cent of these babies were premature.

Gottschalk[5] reported a study on the results of premedication administered to mothers. He made a total of 68 records of the respirations in 40 infants during the first hour of life. The earliest was seven minutes after birth. Some of the mothers had received Demerol® and hyoscine and others had not. The study definitely indicated that Demerol and hyoscine, no matter when administered, exert no effect on the respiration of the newborn infant.

VISCOSITY OF RESPIRATORY MUCUS

In connection with these problems, the previously mentioned group of six physicians is making several studies upon which only a preliminary report, giving a few points, can be made at this time. The first concerns the viscosity of respiratory mucus. Measurements were made on five volunteers, two of whom were used on two different occasions.

Technique: An instrument (Figure 1) was devised for measuring the viscosity of respiratory mucus in the floor of the nose in situ. It consists essentially of a small silver plate, 10 square mm. in area, suspended at one end of a very light metal balance arm. This is mounted in an ear speculum on watch jewels at the fulcrum. In making the measurements, the little polished silver plate is pressed against the mucus on the floor of the nose and a measured weight moved out along the other arm of the balance rod until the silver plate lifts out of the mucus. The method is not entirely exact because a time element is involved just before the silver plate pulls free from the mucus. Nevertheless, an approximate

Table 1.—*The Effect of Atropine on the Viscosity of Respiratory Mucus*

Number of Readings	Subject	Milligrams per Square Millimeter of Resistance	Percentage of Increase
27	Control group	9.2 (avg.)	
33	After atropine, gr. 1/150th	12.4	34
26	After atropine, gr. 1/100th or gr. 1/75th	17.7	92
59	All those receiving atropine	14.9	62

measurement is obtained which can be repeated with reasonable consistency. The resistance measured is not that due to viscosity alone but is the resultant of several factors, among which are viscosity, surface tension, the stickiness or mucilaginous property, and perhaps also the Johansson phenomenon (Table 1).

The average of 27 control readings, before the administration of atropine, measured 9.2 mg. per square mm. of resistance. After the administration of 0.4 mg. of atropine, 33 readings averaged 12.4 mg., or an increase of 34 per cent. Twenty-six readings, after 0.6 mg. or 0.8 mg. of atropine, gave an average reading of 17.7 mg., or an increase of 92 per cent above the controls. Altogether, the 59 measurements, after the administration of atropine, averaged a resistance of 14.9 mg. per square mm. or 62 per cent above that of the controls. This indicates that the cohesiveness of the respiratory mucus can actually be increased by means of atropine.

EXPANSION OF LUNGS IN NEWBORN RABBITS

The next study was designed to measure the air pressure required to open the lungs in newborn rabbits and the effects of scopolamine and atropine upon the resistance found. Thirty-one fetuses, which were sacrificed immediately, before they had breathed, were used in this study.

Technique: The gestation period of a rabbit is said to be 32 days. The females were placed with a male 30 days before the experiment was made. On the 30th day of gestation, and, in one instance, on the 31st, the females were sacrificed and the fetuses delivered as rapidly as possible by abdominal section. The whole litter can readily be delivered in about two minutes. As quickly as the fetuses were delivered, those to be used in this study were sacrificed by sudden trauma while they were still within the amnionic sac before they had attempted to breathe. The entire respiratory tract, including the heart, was removed intact from each fetus, dissecting from below upward. All of the tracheas contained fluid and some contained blood. All were aspirated and then cannulated. The cannula was attached to a water manometer. When scopolamine or atropine was administered to the mother rabbits, it was given by hypodermic injection one hour previous to sacrificing them. The dose of scopolamine used was 0.4 mg. and of atropine either 0.1 or 0.2 mg.

Measurements were made on eight fetuses to determine the amount of air pressure necessary to inflate the lungs. It was found on these eight that "fully inflated" was an inexact state and a definite end-point of some kind would have to be established before the results could be depended upon. Several end-points were tried, but the one finally selected was as follows: The entire lung specimen, including the cannula in the larynx, was sunk in 20 mm. of water. Pressure was then made by means of either a glass or rubber syringe through a "Y" tube, which was connected both to the lung specimen and to the manometer. A reading was taken at that point when the entire lung specimen just barely floated free from the bottom of the basin.

Many of the lung specimens did not inflate smoothly or uniformly. In many, different portions inflated suddenly and at irregular intervals, causing jerky movements in the specimen as pressure was increased. This sudden inflation of some parts was so pronounced in several that pinging sounds were made against the bottom of the metal pan in which they lay.

Results: 108 determinations were made on 31 fetuses (Table 2). The average pressure required for inflating the lungs more or less completely on the first eight, before a definite end-point was established, was 220 mm. of water. Eleven measurements were made on seven specimens after the described end-point had been established, with the heart still contained within the specimen. The average result was 206 mm. of water. In the remaining specimens, the heart was excised. Twenty-four determinations on five specimens, with the previously described end-point, after the heart had been excised, indicated the average pressure required to float the lungs was 183 mm. of water. Forty-three determinations were made on eight specimens after the administration of atropine to the mother. The average of these 43 readings was 191 mm. of water, a rise of only eight points. Twelve determinations were made on three specimens after the administration of scopolamine; the average pressure required to float the lungs was 181 mm., or 2 mm. less than for the controls. In these few determinations, there was no indication that the administration of atropine or scopolamine increased the pressure which was necessary to open the lungs in the fetuses. These findings do not correspond with those found on the volunteers. Many reasons for these apparent discrepancies come to mind.*

POSITIONS OF THORACIC ORGANS IN THE FETUS

It was noted in making the dissection for removal of the lungs in these animals that the lungs occupied only a small part of the space in the thorax after the

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*Perhaps the rabbits are not greatly affected by these drugs; perhaps the scopolamine does not reach the fetus, at least in one hour; maybe the fluid in the bronchial tree prevents an increase in cohesiveness of the mucus; probably the number of measurements made was too low to be statistically significant; although both sets of measurements were made in the respiratory tract, conditions are very different in the anterior portion of the nose from those in bronchioles and alveoli; the two species are very different, as are the physiological ages.

TABLE 2.—*Air Pressure Required to Open the Lungs in Newborn Rabbits and the Effects of Scopolamine and Atropine Upon the Resistance Found*

Number of Measurements	Number of Fetuses	Subject	Mm. of H_2O
8	8	Controls without end-points + heart	220
11	7	Controls with end-point + heart	206
24	5	Controls with end-point, without heart	183
43	8	After atropine	191
12	3	After scopolamine	181
Total: 108	31		

latter had been opened. It was observed that the lungs were in contact with the diaphragm and with the chest wall before air was admitted, but, as soon as air gained access to the pleural space, the lungs collapsed into a comparatively small portion of the space within the thorax. The question naturally arose as to what occupied the remaining portion of the space. Since the pleural cavity was entirely closed and since the bronchial tree was open to the amnionic fluid, it seemed that there could be only one answer, namely, that there was fluid in the lungs which was squeezed out as the elastic lungs collapsed.

Two preparations were made to demonstrate the fluid. The trachea and larynx in one fetus were exposed before the thorax was opened and a glass slide slipped under the trachea. The trachea was then carefully dried and cut across on the glass slide. The thorax was then opened and it was observed that the lungs collapsed as usual. However, there was no flow of fluid out of the trachea onto the slide. In a second specimen, the trachea was exposed and tied off and the entire respiratory tract, with the heart attached, was removed from the thorax. The entire specimen was then carefully dried and laid upon a glass slide and the trachea opened. Again there was no flow of fluid from the end of the trachea, nor did the lungs collapse. This seemed odd, but, after a little further study, the reason was found and it led to another point of interest.

It was found that the lungs did not actually collapse upon opening the thorax; instead, the thorax enlarged. The fetus before delivery was in a position of ventroflexion, which forced the liver high into the thorax, where it occupied most of the space within the thoracic cage. When the animal was straightened out, it was found that the diameter of the thorax decreased as the liver was drawn caudally. In one animal, the girth of the thorax in the fetal position measured 79 mm.; when it had been straightened out, the girth was 75 mm. In a second, the thorax measured 79 mm. in the fetal position and 74.5 mm. after straightening. In a third, the girth of the thorax was 81 mm. in the fetal position and 77.5 after straightening. The reduction in girth is undoubtedly due to atmospheric pressure acting upon the outside of the thorax. As soon as air is admitted to the pleural cavity, the ribs tend to spring out, enlarging the cavity again.

This point may be a factor in helping the fetus to get its first breath. These little animals go into a position of opisthotonos in taking the first gasping breath. The human baby does something similar. It may be that in stretching out in this way, a negative pressure develops within the thorax, which is an aid in expanding the lungs with the first breath.

EFFECT OF CHILLING

An accidental finding, during work on one litter of rabbits, seemed to bear out the idea of Bell. Rabbit 6 contained seven living fetuses, four of which were sacrificed and three of which were allowed to remain alive for a time. They were maintained in a room at 40° F. The first of the latter group, which was very vigorous, was sacrificed after an hour; the lungs appeared to be fully inflated and floated high. The other two became rapidly weaker and at the end of 105 minutes did not move unless stimulated. When the respiratory tracts in these two were removed, it was found that the lungs in both were almost completely atelectatic. They looked the same as did the lungs of those that had not breathed at all. Both floated, but so heavily that they barely broke the surface of the water. Following up this lead, all of the fetuses from the next animal used were allowed to live. This was at a later date and the weather was considerably warmer, the temperature of the room being high enough so that one could work comfortably in shirt-sleeves.

Motion picture equipment was set up for the purpose of recording the anticipated progressive atelectasis. It was intended to expose the fetuses, photographing them at intervals to show progressive weakness from chilling, and then to sacrifice them serially and demonstrate the progressive atelectasis. The first four were sacrificed at intervals from 25 minutes to four hours after delivery; in none of these was there atelectasis. The remainder were placed in a temperature estimated to be about 40° F. After five hours atelectasis was not present in two animals which died. The remaining two were very feeble 17 hours later and at postmortem one of them was found to show patchy atelectasis that was proven by microscopic examination. In the other, the lungs seemed fully expanded. No conclusion can be drawn from these three instances of atelectasis. Perhaps chilling and progressive enfeeblement were factors. It is possible that in these three instances the lungs did not expand immediately after birth. However, the animals did not look or act any different from their litter mates in which the lungs were fully expanded.

EFFECT OF PREMATURITY

An observation was made, also by accident, on the effect of prematurity. It was intended in all of these studies to sacrifice the females on the 30th day of gestation. With the first few animals, great care was taken that the female should not be with the male more than a few hours. As conception usually took place in so short a time, it was assumed that it would in all cases and the female therefore was not always removed promptly in the later stages of the study. Consequently, there were two cases in which conception must have been delayed because the fetuses were somewhat premature. The fetuses from the first of these animals seemed to be near term and, when removed from the amnionic sac, breathed and crawled around, but with less vigor than those born at term. They were unable, however, to free themselves from the amnionic sac and it seemed to be much more difficult for them to get respiration established. In the term animals, the first breath or two was gasping in nature with all of the accessory muscles of respiration brought into action, but, after a few gasps, breathing seemed to be easy. In this first litter of premature rabbits, there were many gasping attempts before respiration was established.

The second of these litters was still more premature. These animals made no attempt to get out of the amnionic sac. When removed they lived for about a half hour and respiration was not established. Gasping attempts at inspiration occurred at intervals of 20 seconds to two minutes. The last gasp was just as labored as the first.

ROENTGENOGRAPHIC STUDIES

Two series of x-ray studies were made and another is under way. In the first series, one roentgenogram was made of each infant within the first 24 hours after birth. In 118 of these the roentgenologists diagnosed atelectasis in 40 or 34 per cent (Table 3). In the second series, each infant was roentgenographed on each of the first three days after birth; 18, or about half of these, showed atelectasis. In most the atelectasis was less on the second and third days than on the first, but in four there was more indication of atelectasis on the second or third days than on the first. These findings are similar to those reported by others and seem to indicate definitely that some degree of atelectasis after birth is normal. All such studies are suspect unless the roentgenograms have been taken at the same phase in respiration. In the series here reported they were not so taken. It is said that there is very little residual air in the lungs of a newborn infant and the aeration between the height of inspiration and forced expiration is pronounced.

The discrepancies noted in the various series of roentgenographic studies are probably due to differences in the criteria of diagnosis. In the group making the present study there was disagreement as to what constituted atelectasis.

A third series has been started, designed to demonstrate the progressive aeration in the first few minutes of life. In this study, exposures are made in series a few minutes apart, beginning before the first breath if possible. The aeration develops rapidly, but is by no means complete after the first 10 or 15 minutes. Among other points of interest are the changes in position of the ribs and of the heart. The ribs appear somewhat compressed before the first breath and, before long, assume a more or less horizontal position, suggesting a change comparable to that found in the newly delivered rabbits after they have been straightened from a fetal position. Another thing of interest is the change in position of the heart. Before the first inspiration, the heart outline is not distinguishable. As soon as aeration begins, the heart shadow appears large and globular, filling the apex of the thorax. After a day or two, or even after a few hours, it is much smaller, has assumed the familiar boot shape and is sharply outlined.

TABLE 3.—*Roentgenographic Findings, First Series, in the Lungs of 118 Normal Newborns. Roentgenograms Taken During the First 24 Hours of Life*

Number of New-Borns X-Rayed	Subject	No Atelectasis	Atelectasis (some degree)
58	After Demerol + scopolamine	36 (62%)	22 (38%)
48	After Demerol alone	33 (69%)	15 (31%)
12	No medication	9 (75%)	3 (25%)
Total: 118		78 (66%)	40 (34%)

Medical Arts Building.

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Interdependent Superiority and Inferiority Feelings

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SUMMARY

It is postulated that in neurotic persons who have unrealistic feelings of superiority and inferiority the two are interdependent. This is a departure from the concept of previous observers that either one or the other is primary and its opposite is overcompensation. The author postulates considerable parallelism, with equal importance for each. He submits that the neurotic person forms two logic-resistant compartments for the two opposed self-estimates and that treatment which makes inroads of logic upon one compartment, simultaneously does so upon the other. Two examples are briefly reported.

The neurotic benefits sought in exaggeration of capability are the same as those sought in insistence upon inferiority: Presumption of superiority at once bids for approbation and delivers the subject from the need to prove himself worthy of it in dreaded competition; exaggeration of incapability baits sympathy and makes competition unnecessary because failure is conceded.

Some of the characteristics of abnormal self-estimates that distinguish them from normal are: Preoccupation with self, resistance to logical explanation of personality problems, inconsistency in reasons for beliefs in adequacy on the one hand and inadequacy on the other, unreality, rationalization of faults, and difficulty and vacillation in the selection of adequate goals.

INTROSPECTION, or self-examination, is a unique power of human beings. It permits a person to form a concept of himself, and so helps him to determine his actions.

Self-evaluation is originally formulated from the attitudes of those who are important to the person early in his life. It leads to self-understanding, and at the same time makes self-misunderstanding possible.

One way in which introspection can be faulty is in an unrealistically high, or low, impression of ability. Those who assume superiority far beyond justification are known to us all, and others who present only their inadequacies are as common. Usually one extreme or the other is consistently predominant, but sometimes there is vacillation. The faulty estimates occur in various spheres, and may involve mental abilities, attractiveness to others, sexual adequacy, accomplishments, moral fiber, physical prowess, or other aspects of the individual. They often appear in more than one sphere, and may involve many spheres with different intensities. They have much in common with attitudes of self-righteousness and guilt, a difference being that the last named involve moral judgments rather than estimates of ability.

Unreasonably favorable and unfavorable impressions both occur in all neurotic people. Their universality has far less meaning, because every major part of personality is handled poorly by all neurotics. The problem is of varying importance in different patients. The present purpose is to discuss a subject which is worthy of consideration, rather than to claim greater importance for it than has been conceded.

This presentation is concerned with distorted concepts of self, as distinguished from reasonable concepts. Enumeration of several characteristics may be of help in discriminating: (1) The neurotically determined ideas cause the symptom of preoccupation, and the sufferers are too much concerned with themselves. (2) They are characterized by greater protection against evidence. This is the resistance to insight found in emotional difficulties. (3) The ideas are likely to be inconsistent within themselves, and disagree with reality, as they are formed in the presence of a severe bias. (4) They prevent reasonable effort, and are an excuse, as they serve to rationalize inability to compete. (5) They prevent the formation of adequate goals because the normal understanding of self is lacking. And (6) the strongest impressions of superiority and inferiority are in the same area. So a normal man might think he did well in dealing with people, consider himself poor at abstractions, feel that he knew his own abilities fairly well, and want to become an automobile salesman, when actually he had the ability to do so. Another, less fortunate, could think he was outstanding in mathematics, yet be afraid of failing that subject in school. He would, perhaps, vacillate between trying for a graduate college degree, and being content with a high school education. He would avoid taking an aptitude test, though he worried constantly about his future success.

Adler[1] stressed inferiority feelings. He believed that the Inferiority Complex is of primary importance, that it springs from actual deficiencies existing in the fourth or fifth year of life, and that the Superiority Complex develops thereafter as the usual overcompensation. Freud[3] attributed feelings of in-

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adequacy to tension between ego and superego when one is not loved; and another time to aggression turned inward. Henry Stack Sullivan[6] believed that a child comes to feel inadequate in a home where his parents treat him as if he is insignificant. In other words, he accepts their attitude. Fenichel[2] referred to it as arising from the loss of energy spent in neurotic repression. Symonds[7] elaborated several distinct reasons for feeling incompetent, and also considered that its opposite is overcompensation. Maslow and Mittelman[5] described advantages of pseudo deficiency as excuses for various things, including laziness, dependence, and failure to cooperate. These writers would put the baser self-impression first. Horney[4] reverses this, and speaks of the original distortion as the formation of a superior self-impression which she calls the Idealized Image. The neurotic's real inadequacies make the pretense necessary. She elaborates the idea considerably, because she thinks superior and inferior self-evaluations to be ever-present in neurosis, as a means of dealing with anxiety.

COINCIDENCE OF OPPOSED SELF-ESTIMATES

It seems to the author that faulty feelings of adequacy and inadequacy occur together. Neither is first, psychodynamically speaking, or more basic. They are alike in the way that opposites are often alike and represent the two sides of the same coin. Each depends on the other for existence. The words superiority and inferiority are comparative, and can only exist in relation to something else. It is characteristic of the neurotic that he uses his own feelings for evaluations, whereas the rest of us think of ourselves in relation to those around us, for the most part. The neurotic is less realistic, and his grandiosity is not sufficiently based on a valid comparison to others. If he feels superior, it is in relation to a less favorable self-appraisal of his own. If two men finish a golf course in 90 strokes, the one who rarely beats 100 is the person who feels elated. He has done well in comparison to himself. However, if he were emotionally unstable he would need the prestige of pretending he always did as well. Or, on the other hand, he would insist that his score was good luck, for fear that he might be expected to do the same again. Unreasonable ideas of greatness prove the presence of feelings of ignominy just as exaggerated. The reverse is also true. Neither extreme opinion is simple overcompensation. Both serve that function, to some extent, but need some other reason for existence.

An example is given for clarification.

Miss A. is an attractive young woman of 20 who has difficulty in her relationship to the opposite sex. Much of her story is left out, but it should be mentioned that her parents have maintained the pretense of an affectionate home, when little real love existed. She has been forced to act fond of them while she has felt rejected. When treatment started, she complained of feeling that she was repulsive to men, and had actually been unable to please them. She has made herself unattractive in various ways, as in clothes, voice, choice of words, mannerisms, and overeagerness. At the same time, she denied that she did these things. When acceptable men were friendly to her, she showed pronounced anxiety. During treatment, she moved away from her parents. Later it appeared that she also felt herself so fascinating that she stayed away from men so as not to hurt them. She had to be careful to avoid being a siren. Also, she was fearful of flirting, because it might fail, and prove her devastating powers nonexistent. She could still hope that her inferiority was unreal if it were not put to the test. She could no more tolerate success than failure. Any explanation was acceptable but moderation. All arguments rationalized her failure, although they did not agree among themselves.

Improvement involved discussion of both extremes. After her idea of seductiveness was worked through a little further, she repeatedly spoke of her unattractiveness more easily, and the reverse. So the same resistance was attached to both extreme opinions, and could be reduced by working on either. The dynamics mentioned have been confirmed by her production of part, and acceptance of the rest, of her emotional reaction, by self-consistency, by the change in her behavior after interpretation, and by improvement. Of course, an example never proves such a concept, and it is presented as an illustration.

Undue impressions of competence or incompetence can be found in the presence of any degree of potential ability. An unstable genius can be extremely sensitive about his achievement, and claim more prominence than he deserves. Some people with physical deformities overdo the handicap in their own minds. And an artist of average talent might starve in a garret rather than admit that he is average. Yet, other people with any amount of natural endowment find good adjustment, and have only moderate concern about their own status, or acceptability. There are morons who do not greatly aspire to be college professors, as well as professors who are fairly well content. We must look elsewhere for the explanation of why some, but not all, are plagued with the trouble under consideration.

The dilemma of ability and disability is present in those who cannot meet their world face to face, because they have not found sufficient gratification. That would include everyone with mental illness. And as a child's opinion of himself is derived from his father's and mother's attitude toward him, both emotional adjustment and self-esteem depend considerably on the amount of affection shown by the parents, so the correlation between them is high. Another element is that a double impression of one's self is an inconsistency, and is likely to be important in a man who has had much contradictory information about himself. If a child is constantly criticized by one parent, and lauded by the other, how can he know his true worth? Another, with foreign parents, who finds standards in his home very different than elsewhere, might become confused. Failure causes the two impressions to drift farther apart, whereas success brings them closer together; and a blunder by a social misfit will convince him even more that his acquaintances are not worth his efforts.

Another consideration is the stress placed on excellence as a prerequisite to acceptance. A family of athletes who emphasize sports will make a studious child acutely uncomfortable. Our highly competitive society has been blamed for causing trouble in this way. There are certainly other reasons for divergent self-impressions which have not been mentioned.

SPURIOUS BENEFITS OF NEUROTIC BELIEFS

For the unhappy state of affairs to be maintained over a long time and constitute part of a chronic illness, there must be some reason why the neurotic maintains his burden after it has been forced on him. There is a spurious kind of benefit derived from believing one's self above others. It avoids the necessity of competition. Loftiness makes spadework inappropriate. The presumption of competence sidesteps the requirement of working to attain it. It is a bid for affection, and for the assistance of others because of one's worthiness. Surely you would help an exceptional person to benefit society, and be pleased with the association of one so fine. But the misery of self-resignation demands the same benefits for opposite reasons. Trying is useless for him who cannot succeed. He can demand aid and affection as he is unable to care for himself. The appeal of helplessness is strong. Both attitudes evade real effort and try to settle the problems of status and affection. They are unlike in that the more august role attains prominence, whereas the other foregoes it. The superior stand calls for admiration, its counterpart for commiseration. One conquers competitive hostility, the other assuages it. The first avoids criticism by refusing to accept it, the second nullifies it by blaming first.

Resistances also tend to prevent improvement. In the presence of his neurosis, a man cannot face reality. He is unable to work for his status in competition with others, or to give sound affection in order to get it. To avoid devastation, he must get by with the imperfect returns his illness grants him. He cannot give up the mechanism until well, or be well until he gives up the mechanism. Signs that the braggart is not wholely truthful hint at the depth of degradation as his only alternative. He has no reasonable middle opinion of himself. As he exaggerates even more to attain greater security, both impressions travel farther from reality, and the depths he fears seem deeper. Because, as the better opinion becomes relatively higher, the worse one is comparatively lower. The obsequious opposite of this person shrinks from suggestions of nobility because he fears the lofty heights of his other opinion, with its vulnerability to criticism and competitive hostility. So he will contradict an encouraging word as though it threatened his existence, instead of only his neurosis.

The neurotic finds himself in the position of a man in a room with only one light, and that one far too strong. He can turn the light on, and suffer in the glare of brilliance, or switch it off and leave himself in gloom and darkness. There is no middle position for the light switch, or for the neurotic. His pretended magnificence in the end demands excellence of performance. It often alienates those he tries to win. Affection he does receive seems to him dependent on a perilous stand that requires constant effort to maintain. He has an uncertain escape from insecurity. So he represses any indications of weakness, with the usual results of repression. Or he can switch to the role of inadequacy. He has then escaped the distress of false claims but is in no better condition. The life of an incapable person is miserable. It requires that he give up the use of the abilities he possesses, and have no hope of success. He must repress the knowledge of his own capacities. Weaklings are more tolerated than loved. Realistic, gratifying affection is difficult, if not impossible. Even a Good Samaritan grows weary of a man in chronic, self-imposed distress. So the resigned individual must put up with a bad bargain or turn back to superiority. Most neurotics accept one extreme impression in their conscious minds, and try to soothe themselves with occasional or partly hidden feelings of the opposite nature. It is a painful sort of relief, but at least a change.

After the situation is established, the individual seeks confirmation for whichever face he presents to himself and the world. All helpful data are kept available, and contradictory signs are hidden. He has built up two separate sources of information to call upon. Thereafter a compliment or achievement is placed with its kind, and so is a slur or failure. He has two logic-tight compartments. He may or may not be able to reverse the repression and consider either set of facts he wishes, but he cannot examine both at once. The two balance on the midpoint of reality, and are made up of partial truths, rather than whole fiction. They are nearly the same distance from the fulcrum of reality.

Another example will be given.

B. is a college student with ability proven to be above average. He has had other difficulties not described here. But the subject of interest is his feeling of inferiority while doing well in his job, making excellent grades, and carrying on an active social life. He could not give up any of his extensive activities, or even fail to excel in all, without serious feelings of inadequacy. He dated only with girls who were not up to his intellectual or social level, because he dared not take any chance of failure in obtaining affection. He became quite ineffectual during an intelligence test, and spoiled its validity, because he subconsciously feared getting a true estimate of himself. He vacillated between the goal of a Ph.D. and quitting school immediately, and was taking a course he did not want, in order to avoid decision. He gave ingenious arguments for the possession of eminent ability, and at other times was as clever in showing his mediocrity. After some improvement, he was able to make a real effort on a term paper which he read before a class. The teacher complimented him highly, and the anxiety resulting from success was the topic of the next interview. It threatened his concept of inadequacy. Both wrong impressions of himself moderated simultaneously, and interpretation of either one decreased resistance to the interpretation of the other.

The same attempts at validation have been used as in the first case. It is the author's opinion that the patients have shown all the dynamics described in this presentation that could occur in one person.

Psychotics provide many striking illustrations. A manic depressive patient certainly seems capable of the extremes we have mentioned. A schizophrenic in a hospital can claim he is incapable of ward routine, while he insists he is a genius.

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Tonsillectomy in the Allergic Child

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SUMMARY

Edema is the chief factor in enlargement of tonsils of children with allergic disease.

In the absence of infection tonsillectomy and adenoidectomy are contraindicated in the allergic child except when obstruction is present.

Infection produces one of two distinct patterns when it influences allergic states, the pattern depending upon the nature of the infectious disease.

Chronic infection of the upper respiratory tract in the allergic child produces a pattern simulating that of acute respiratory infection.

If, in the presence of infected tonsils and adenoids, management of the allergic state does not produce results, tonsillectomy and adenoidectomy are indicated. Management of the allergic disease must be continued postoperatively.

Whether infection is present or absent, allergic disease can be controlled only through competent management of it.

THERE is a considerable difference in opinion among clinicians as to the value of tonsillectomy and adenoidectomy in the allergic child. The confusion and the various attitudes that exist reflect the inconsistencies encountered in the literature as to the influence of removal of the tonsils and adenoids upon a child's allergic condition. There are many observations which indicate that allergic conditions may become aggravated following tonsillectomy.

The onset of asthma either immediately or shortly following surgical removal of the tonsils and adenoids is not uncommon. For this reason, many clinicians are reluctant to recommend such a procedure for fear of aggravating co-existing allergic disease. On the other hand, the proponents of tonsillectomy in the allergic child can find support in the literature for their attitude and not infrequently the sustaining evidence occurs in the same communication reporting on the deleterious effects of tonsillectomy. Peshkin,[12] Bullen,[2] Rackemann,[15] Stout,[18] Piness,[13] Waldbott,[19] Hansel,[8] and Smyth[17] have stressed that allergic disease is either unimproved or aggravated following tonsillectomy. But each of these observers mentions in the same report that he has also observed cases in which the response was good.

The statistical evidence for failure following such procedures in the allergic child far outweighs that reported for successes, which no doubt explains the strong attitude that exists against tonsillectomy and adenoidectomy. But the fact that good responses have been observed would imply that there are allergic children for whom such operations are indicated. That the group benefiting from removal of tonsils and adenoids is in the minority is no justification for subjecting these children to clinical judgment dictated by the majority. In view of such extreme variations in the response to tonsillectomy and adenoidectomy, a consideration of the problem to determine the criteria for the indications and contraindications for these operations in the allergic child is advisable.

The problem resolves itself into a consideration of the allergic child who presents no evidence of infection and the allergic child whose allergic disease is complicated by infection. The dominant feature of pathologic change in allergic reactions affecting lymphoid structures is edema, although coincidental with edema a degree of hyperplasia develops. It is edema that explains the pallor, succulence, bogginess, and increased size which characterize these structures in the allergic child.

The liberal distribution of lymphoid tissue in the nasopharynx of the prepubescent child is a recognized observation.[14] The participation of the tonsils and adenoids in this normal distribution of childhood may mislead the clinician into considering as a large tonsil and adenoid what is actually normal for a child in the first decade of life. If one adds to this normal size the increment of edema induced by allergic reaction, the result is a large, pale, boggy and succulent tonsil which is a common observation in the allergic child. Coupled with the symptoms of allergic disease—nasal itching, sneezing, rhinorrhea, nasal stuffiness, postnasal drip and cough—a clinical picture is presented which is frequently mistaken for recurrent infection of the upper respiratory tract. Since this syndrome is an expression of the influence of allergy upon respiratory lymphoid structures and not the cause of the disease, the surgical removal of either the tonsils or the adenoids, even when enlarged, in the absence of infection will not effect an alleviation of the symptoms. To the contrary, tonsillectomy and adenoidectomy may aggravate the existing allergic condition. Only competent and thorough management of the allergic disease can offer control of symptoms. With control of the allergic disease, it is not unusual to observe a decrease in the size of the tonsils and other lymphoid structures of the nasopharynx.

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The indiscriminate removal of tonsils and adenoids for the relief of symptoms in the allergic child no doubt accounts in some measure for many of the 1,235,000 (Collins[3]) tonsillectomies performed in this country each year and, further, perhaps explains many of the failures to produce relief from symptoms. Such failures have been reported by numerous investigators who have analyzed the findings in large groups of tonsillectomized children.[1, 10, 11, 16]

The general rule should be that in the absence of infection tonsillectomy and adenoidectomy are contraindicated in the allergic child. There is one exception. When either tonsils or adenoids are so large that they produce symptoms of obstruction, removal of these structures is justified. Even in these circumstances, however it is justified only when adequate management of the allergic condition is effected both before and after operation.

It is a common impression that either bacteria or bacterial products may produce such common syndromes of the allergic state as allergic rhinitis, asthma, and eczema. Current observations in immunology indicate that either bacteria or bacterial products may produce tissue hypersensitivity, but the tissue changes in allergic conditions of this type are irreversible and permanent. When bacteria or their products produce allergic disease, death of tissues is the dominant feature of the pathologic changes. Such fixed tissue alterations cannot explain the symptomatology of the common allergic diseases—allergic rhinitis, asthma, and eczema—which are characterized by reversible tissue changes due to non-bacterial antigens—pollens, environmental factors, and foods.

The author recently reported that infection plays a dual role in allergy.[5, 6] First, it may produce tissue hypersensitivity characterized pathologically by fixed changes in tissue and clinically by the collagenous diseases including rheumatic fever and glomerulonephritis. Second, infection may influence the course of existing allergic disease without participating in the underlying tissue changes. This ability on the part of infection to influence the course of existing allergic disease is frequently misinterpreted as bacterial sensitivity. When infection does influence the course of existing allergic reaction, it produces a distinct pattern for it. The pattern is one of two types, depending upon the nature of the infection (Figure 1).

The first pattern is observed in association with pertussis, the infectious diseases—measles, mumps, chickenpox, roseola infantum, Kaposi's disease, and the epidemic viral diseases. During the period of invasion and the prodromal stage of these diseases the allergic disease may be aggravated. As the peak of the infection is approached, the allergic condition improves, so that at the fastigium, the symptoms of allergic reaction are suppressed to recur with convalescence or shortly following (Figure 2).

The second pattern is observed with the upper respiratory infections of the bacterial type. During the period of invasion of these infections there is no apparent change in the allergic condition, but it is aggravated at the peak of the infection. As the infection subsides, the allergic disease improves. It is noteworthy that the acute symptoms of allergy associated with these infections do not respond to the usual medical management for them. The best response is observed with the antibiotics, either sulfonamides or penicillin. The concomitant improvement of both the infection and the allergic reaction with the use of antibiotics leads many clinicians to believe that the syndrome is caused by bacterial sensitivity when actually it is a manifestation of the influence of infection upon the existing allergic disease (Figure 3).

Chronic bacterial infection of the upper respiratory tract in the allergic child presents a course which is merely a repetition of the pattern of acute infection of the upper respiratory tract concomitant with allergic disease. A cyclic pattern may be noted in the histories of allergic patients with chronic infection. There are recurrent acute attacks of infection at variable intervals of from several days or weeks to several months. With each exacerbation of

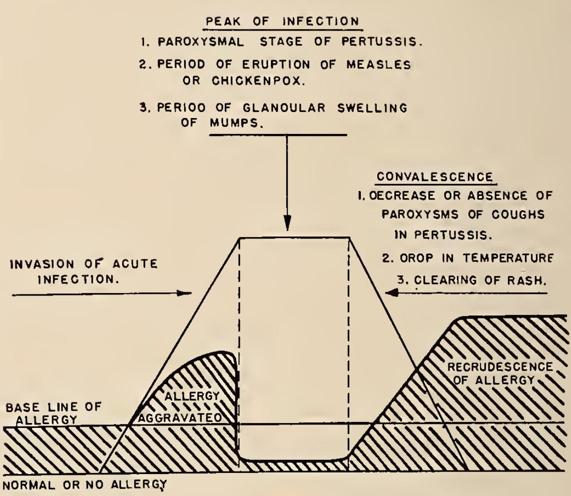
PEAK OF INFECTION
1. PAROXYSMAL STAGE OF PERTUSSIS.
2. PERIOD OF ERUPTION OF MEASLES OR CHICKENPOX.
3. PERIOD OF GLANDULAR SWELLING OF MUMPS.
CONVALESCENCE
1. DECREASE OR ABSENCE OF PAROXYSMS OF COUGHS IN PERTUSSIS.
2. DROP IN TEMPERATURE
3. CLEARING OF RASH.
INVASION OF ACUTE INFECTION.
RECRUDESCENCE OF ALLERGY
ALLERGY AGGRAVATED
BASE LINE OF ALLERGY
NORMAL OR NO ALLERGY

FIG. I

ACUTE UPPER RESPIRATORY INFECTION

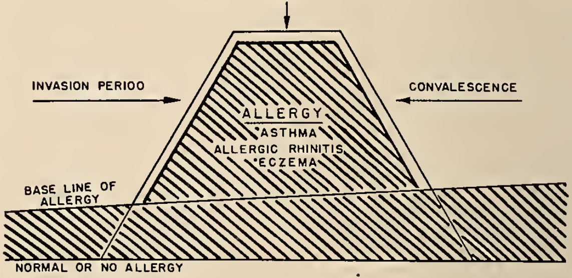
PEAK OF INFECTION
INVASION PERIOD
CONVALESCENCE
ALLERGY
ASTHMA
ALLERGIC RHINITIS
ECZEMA
BASE LINE OF ALLERGY
NORMAL OR NO ALLERGY

FIG. 2

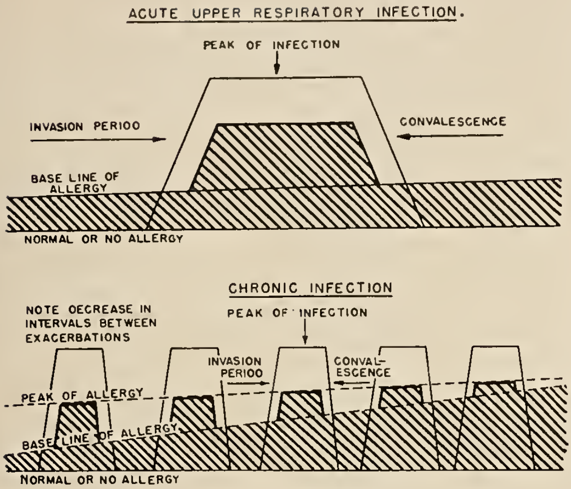

FIG 3

the infection the allergic disease is aggravated. As the infection subsides, the allergic disease improves but remains at a somewhat higher level than existed prior to the onset of the acute attack. Over a period of several months or several years there is a gradual increase in the severity of each acute attack with a gradual decrease in the interval between attacks and a gradual increase in the level of the residual allergic disease. Eventually, the base line for the allergic disease is so high that even specific therapy directed against the infection influences the allergic condition very little if at all. Even definitive treatment for the allergic disease may not produce the desired control. Children who have reached this stage have almost constant symptoms of the allergic disease, which can be controlled only by both clearing the foci of infection and thorough, competent management of the allergic condition. The presence of either chronic infected tonsils or adenoids or both is one of the most important factors contributing to the pattern of recurrent infection in allergic patients. It is important, therefore, in cases in which this syndrome is present, that tonsils and adenoids implicated by infection be removed surgically.

Such a recommendation raises two salient points for consideration: First, the importance of foci of infection and, second, the criteria upon which the diagnosis of infection of the tonsils and adenoids can be made.

The antigen-antibody mechanism responsible for the tissue changes in hypersensitivity operates independently of infection in every instance. In the collagenous diseases, rheumatic fever, and glomerulonephritis, once the mechanism is initiated it functions without the infection which generates the system. For this reason removal of the tonsils and adenoids in such diseases as rheumatic fever and glomerulonephritis does not effect an arrest of the disease. If there were some method for controlling the hypersensitive state activated by bacteria or bacterial products it would be possible not only to halt the progress of such diseases as glomerulonephritis and rheumatic fever but perhaps even to prevent them. The removal of tonsils and adenoids from patients having these diseases may minimize the likelihood of acute exacerbations.

On the other hand, allergic rhinitis, asthma, and eczema are caused by nonbacterial antigens such as pollens, environmental factors, and foods; while intercurrent infection merely serves as a contributory factor aggravating the allergic state in proportion to the degree of the activity of the infection. In such conditions, when foci of infection are cleared the contributory factor is removed, leaving behind the allergic state which can be controlled by current methods for treatment of such conditions. It must be emphasized that when infection is cleared the allergic state still remains, and only definitive treatment directed against it can offer control of the symptoms.

Infection and allergy operate in both directions; that is, infection may serve to aggravate the allergic state and allergic reaction may activate the infection (Piness[13]). It is not uncommon to observe an allergic child with evidence of infection who under management of the allergic state will show control both of the allergic symptoms and of the respiratory infections. For this reason, it is important to institute complete and thorough treatment for the allergic condition before recommending operation. If, in spite of management of the allergic reaction, the patient still experiences frequent recurrent infections which aggravate the allergic condition, then procedures for clearing the foci of infection should be considered. In addition to the tonsils and adenoids, the sinuses (and in children, less frequently, the teeth) may be foci.

Since tonsils and adenoids may be foci of infection which influences the course of existing allergic disease, it is important to consider the criteria upon which such a diagnosis can be made. Size of the tonsil and adenoid is not a reliable guide for diagnosis of infection. It has already been pointed out that in early childhood the tonsils and adenoids normally may be large and that the edema of allergic disease may add considerably to their size. On the other hand a small tonsil and adenoid may be the site of a very annoying focus. Some clinicians consider a dark red discoloration (Glover[7]) with thickening of the margins of the anterior pillars and the expression of cheesy exudate (Epstein[4]) from the tonsillar crypts as reliable findings for a diagnosis of infection. But on both points there is much contradiction.[7] Although the presence of cervical adenopathy is looked upon by many as pathognomonic, this is open to question.[7] Actually, in spite of the widespread practice of tonsillectomy and adenoidectomy there are no absolute objective criteria for removal.

In the absence of reliable objective criteria, subjective findings must be relied upon to guide the physician in determining when the tonsils and adenoids should be removed from the allergic child. History is the most reliable index. An allergic child who, after competent management of allergic disease for a reasonable period of time, is still subject to recurrent upper respiratory infections with involvement of the tonsils and adenoids and with accompanying aggravation of the allergic disease, is a bona-fide candidate for tonsillectomy or adenoidectomy or both. Or the allergic child who, in spite of competent management for the allergic disease, is subject to recurrent attacks of otitis media which may be due to laterally placed adenoid masses is a reasonable subject for adenoidectomy. The judicious trial of management for the allergic condition before resorting to operation is stressed because frequently such treatment may control the symptoms.

After foci of infection are cleared by removal of the tonsils and adenoids of the allergic child, it is not uncommon to observe the complete relief of symptoms of both the allergy and the infection. Such complete relief from symptoms may give the clinician a false sense of security and lead him to neglect the treatment for the allergic disease which is still present. Clearing the foci of infection is but one measure in the management of the allergic child with infection. Only thorough management of the allergic state can insure against the return of the symptoms of allergic reaction. The early institution of such therapy is imperative to prevent the likelihood of the recurrence of lymphoid tissue in the upper respiratory tract which is a common observation in the untreated allergic child (Piness[13]). When infection occurs in lymphoid tissues which have regrown, the pattern of allergic disease and infection is repeated. It is also important that control for the allergic state be instituted soon after tonsillectomy and adenoidectomy to prevent aggravation of the allergic disease, a phenomenon frequently noted following operation. This practice is in agreement with Hansel's[9] observation that in many cases of children with allergic disease, tonsillectomy was definitely indicated and that with careful attention to the control of the allergic state the occurrence of untoward complications could be avoided with reasonable safety.

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Physiology and Management of the Climacteric

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SUMMARY

Women in the climacteric should have a thorough medical investigation, reassurance, and endocrine therapy when indicated.

Estrogens give prompt relief to the large number of women with sympathetic nervous system symptoms during the climacteric.

Estrogens are most effective when given parenterally followed by short periods of oral administration.

Estrogens should be given only for actual need and withdrawn after symptoms disappear.

Androgens are useful in the immediate control of functional bleeding and also for alleviating symptoms in patients who respond poorly to estrogens or for whom estrogens are contraindicated.

The addition of vitamin B to parenteral endocrine therapy apparently enhances the effect of the hormone.

THE climacteric is the whole period of waning ovarian function through which changing hormonal relationships may produce symptoms. A great deal has been written concerning the physiology and management of this period, but there is almost nothing in the literature about clinical experience. The purpose of this presentation is to summarize results obtained in treating 280 climacteric patients during the past eight years.

The hormonal changes usually start late in the fourth decade of life, and glandular equilibrium usually is reestablished about midway of the sixth decade. During this period, the decrease in ovarian function is far from constant, which accounts for the tendency of early symptoms to be transitory. In the aging ovary the number of follicles capable of responding to anterior pituitary stimulus is reduced[8] and regular maturation and ovulation become less and less certain. Progesterone, then, the ovarian hormone which matures the endometrium and helps to regulate uterine bleeding, is the first to be affected.[4] However, the cyclic increase and decrease of estrogen, accompanied or not by vaginal bleeding, continues, but less regularly. This is the period through which the unopposed estrin stimulation of the endometrium not infrequently causes irregular, prolonged or profuse bleeding.[3]

Hamblen[6] believes estrogen deprivation precipitates uterine bleeding. The menopause, or cessation of bleeding, theoretically occurs when the production of estrogen no longer has a great enough cyclic rise and fall to cause endometrial growth and regression.

The decrease in estrogen secretion is attended by profound changes in the anterior pituitary gland and the adrenals, both medulla and cortex. The basophilic cells of the anterior pituitary are increased[12] and the anterior pituitary hormone demonstrable in the blood and urine is increased tenfold or more.[4] Furthermore, it is no longer inhibited or inactivated by the cyclic increase in estrogen. The adrenal cortex, which is the source of both estrogen and androgen, with estrogen predominating through the years of menstruation, is stimulated so that after the menopause androgen production is increased to actually invert the estrogen-androgen ratio.[7]

The symptoms of the climacteric, almost without exception, can be attributed to over-stimulation of the sympathetic nervous system.[10] The mechanism is obscure. A certain correlation has been shown between the amount of anterior pituitary hormone excreted in the urine and the severity of climacteric symptoms.[4] However, this hormone is demonstrable in the urine long after symptoms subside. Direct stimulation by anterior pituitary hormone, therefore, cannot be the whole story, and what part the adrenals play in the production of symptoms is not known. Whatever the cause, it is certain that estrogen, and, to a lesser extent, androgen, protect against production of the sympathetic nervous system symptoms.

The symptoms most frequently encountered among the 280 women observed in an eight-year period who presented themselves specifically for help through the climacteric are given in Table 1. Hot flushes was the chief complaint of 228 patients. Nervousness occurred next most frequently, in 126. The comparatively high incidence of arthralgia was surprising. Bloating and palpitation were complaints elicited much more commonly by questioning the patients, but the figures recorded are those for spontaneously stated complaints.

The management of such patients begins with a complete history and physical examination, blood

TABLE 1.—*Frequency of Symptoms in 280 Climacteric Patients*

Symptoms	Number
Hot flushes	228
Nervousness	126
Arthralgia	48
Excess fatigue	43
Insomnia	37
Bleeding	33
Depression	25
Pruritus and atrophy	23
Headache	15
Dizziness	14
Bloating and nausea	6
Palpitation	5

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cell count and urinalysis, and, when indicated, an electrocardiogram and a determination of basal metabolic rate. The history-taking gives an opportunity to evaluate the woman psychologically at an age when nervous tension is exaggerated. The stresses and strains of life come to a focus as the patient is forced to accept, consciously or subconsciously, the fact that a certain phase of her life is over. She needs assurance of her importance, of her productive, if not reproductive, capacity and of an abundant life ahead. The general sense of insecurity at this time is exacerbated by the discomfort of hot flushes, and the concomitant fatigue and depression. The patient needs assurance that these symptoms are transitory. Even though the climacteric is physiological, about 45 per cent of the women in this phase really need medical supervision and the help of endocrines. All deserve careful examination.

In treating the patient the objectives are, first, to alleviate the presenting symptoms promptly and completely, and, second, to allow the body to continue its own adjustment by limiting the use of hormones to periods of actual need. The author has used excessive bleeding and hot flushes, the two most objective symptoms, as indications for endocrine therapy.

When irregular, prolonged or profuse bleeding was the presenting symptom, gross pelvic disease and malignant invasion were ruled out first, by examination, vaginal smears, biopsy or curettage, as indicated. Endocrine therapy then was considered justified. Hamblen[6] and others have used large doses of estrogens on the theoretical ground that by their use anterior pituitary hormone is depressed and endometrial growth stimulated and that a growing endometrium does not bleed. They also think that the estrogen level can be maintained well above that at which bleeding occurs and finally be withdrawn gradually without recurrence. To the author it has seemed sounder to use androgens because they are normally increased at the climacteric. There is, also, evidence that they depress the production of anterior pituitary hormone somewhat,[11] neutralize the effect of estrogen[13] and reduce the blood supply to the endometrium by increasing myometrial tone and constricting the spiral arteries.[14]

Patients with functional bleeding of the climacteric were given androgenic substances combined with vitamin B in the form of Thex.® The addition of vitamin B was based on the Biskinds'[2] theory that the liver does not metabolize estrogen in the face of a deficiency and that there is then an excess of estrogen in the blood. However, others have since shown that an adequate protein diet is the factor necessary for normal estrogen metabolism.[9] Nonetheless, since vitamin B deficiency in itself causes palpitation and weakness, nervous irritability and loss of memory,[1] all symptoms common to the climacteric, the author has continued to give vitamin B in the belief that the addition of this vitamin to both estrogen and androgen therapy enhances the patient's sense of well-being more rapidly than the hormones do alone.

Table 2 summarizes experience with 33 patients having unusual climacteric bleeding. Testosterone propionate (Oreton®), 25 mg., combined with 1 cc. of Thex® was given to 21 patients intramuscularly every day or every other day until the bleeding stopped. In 14 of the 21 cases two to four injections were sufficient. In the remaining seven, six to 12 injections were used. The recurrences in this group appeared one month to a year later. Curettement was done in six cases to rule out malignant disease. Hysterectomy was done in two cases, in one because the bleeding was not controlled, and in the other because of frequent recurrence; both patients had small submucous fibroids. Antuitrin-S® was administered in 250- or 500-unit doses to seven patients. Bleeding was controlled temporarily for five. The author has abandoned the use of this substance because of the high percentage of side reactions and the equivocal results.

Table 3 shows some of the androgenic substances available for clinical use.

In general, it is the author's opinion that excessive functional bleeding can be controlled safely and the patient carried to the actual menopause with androgen therapy or by curettage and androgens.

Patients with unusual bleeding made up only a small part of the total group of 280 who sought help in the climacteric. Of the remaining 247, 228 complained of hot flushes and other sympathetic nervous system symptoms. These patients responded promptly and well to estrogens.

There are many estrogen preparations, natural and synthetic, available for parenteral or oral use. The natural estrogens are those found in pregnancy blood or urine, and the synthetic estrogens are substances differing in chemical structure[5] from the natural estrogens but having identical physiological action. The synthetic estrogens are cheaper, but are more liable to nauseate and cause vaginal bleeding; and, in the author's experience, it was harder to wean the patients away from prolonged use.

TABLE 2.—*Treatment of Climacteric Bleeding* (33 Cases)

	Testosterone	Antuitrin-S	D. and C.	Hysterectomy
Controlled	21	5	1	1
Not controlled	1	2	1	....
Recurred	8	2	....	....
D. and C.	6	....	....	....
Hysterectomy	2	2	1	....

TABLE 3.—*Androgens Available for Clinical Use*

Substance	Dose
PARENTERAL	
Oreton	10- 25 mg.
Perandren	10- 50 mg.
Androlin	6- 24 mg.
Testosterone propionate	10-100 mg.
ORAL	
Oreton M	10- 25 mg.
Metandren	10- 25 mg.
Methyltestosterone	10- 25 mg.

Table 4 lists some of the available natural estrogens and average doses. Some of the available synthetic estrogens and average doses are shown in Table 5.

Among 238 patients treated with estrogens, 228 had hot flushes, and the control of this more objective symptom was used as a criterion of success or failure. Estrogens were given parenterally or orally or by a combination of both methods.

Parenterally, Progynon-B® or Estradiol® Benzoate 0.33 mg. with Thex,® cc., was administered twice a week for two weeks, and once a week thereafter to make a total of six to eight injections. The procedure was the same for the combined parenteral and oral treatment except that therapy was continued with Estinyl,® 0.05 mg., or Premarin,® 1.25 mg. A prescription for 30 tables containing these substances was given, to be taken one daily for seven days if symptoms returned. The patient was instructed to discontinue the medication at the end of the seven days and not to resume it for at least one week, and then only if necessary. For oral treatment alone, Estinyl or Premarin was given (or occasionally 0.1 mg. of stilbestrol), with directions to take one tablet daily for an initial period of two or three weeks, then to discontinue them for a week, and to resume if necessary.

Table 4.—*Natural Estrogens Available for Clinical Use*

Substance	Dose
PARENTERAL	
Progynon B (Estradiol)	0.083 mg. - 3.33 mg.
Di-Ovocylin (Estradiol)	0.1 mg. - 5.0 mg.
Theelestrin (Estrone +)	2,000 - 20,000 I. U.
Amniotin (Estrone +)	2,000 - 20,000 I. U.
Theelin (Estrone)	1,000 - 50,000 I. U. 0.1 - 5.0 mg.
ORAL	
Progynon DH (Estradiol)	0.5 mg.
Estinyl (Estradiol)	0.02 and 0.05 mg.
Premarin (Estrone +)	0.0625 - 2.5 mg.
Emmenin (Estrone +)	120 day-oral U. (Collip)
Theelol (Estriol)	0.06 - 0.24 mg.

Table 5.—*Synthetic Estrogens Available for Clinical Use*

Substance	Dose
PARENTERAL	
Diethylstilbestrol (Stilbestrol)	0.5 - 5.0 mg.
Benzestrol	5.0 mg.
Mestilbol	0.25 - 2.5 mg.
Diethylstilbestrol-dipropionate	0.5 - 5.0 mg.
ORAL	
Diethylstilbestrol (Stilbestrol)	0.1 - 25.0 mg.
Benzestrol	2.0 - 5.0 mg.
Dienestrol	0.1 - 0.5 mg.
Hexestrol	3.0 mg.
Meprane	1.0 mg.

The results of estrogen therapy are shown in Table 6.

Of the 238 patients, 218 were symptomatically relieved. Improvement was notable by the end of the second week in nearly every instance. The number of women who obtained relief not only from the hot flushes and the other sympathetic nervous system manifestations but also from the arthralgias is considered impressive.

Most of the 20 patients who were not relieved became acutely uncomfortable with increased hot flushes and nervousness or with pelvic discomfort and vaginal bleeding. This group was helped by secondary treatment with testosterone propionate. The occasional nausea encountered among these patients taking the hormone by mouth was relieved by changing the type of estrogen, from a natural to a synthetic substance, or vice versa.

Six of the patients with hot flushes had had either pelvic or breast carcinomas. To them testosterone propionate was given, with fair success. The hot flushes were not as promptly and completely controlled as with estrogen, but nervousness and fatigue were reduced.

The author's experience with local application of estrogen in the form of vaginal suppositories or creams for pruritus and atrophy has been very limited, since it has been found that intramuscular injections give more rapid relief and more lasting effect than local applications.

A surprising number of the patients who sought relief from acute symptoms had been taking estrogens daily for months or years by mouth. Estrogen used in this way only prolongs the period of readjustment and builds up a tolerance which makes small doses ineffective. Furthermore, although there is no proof that estrogenic substances are carcinogenic in themselves, there is evidence that carcinoma occurs more frequently in women who carry high estrin titres.[8]

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Table 6.—*Results of Estrogen Therapy*

Estrogen Administered	Menses Regular		Menses Irregular or Stopped		Surgical Menopause		Total Women Treated
	Relieved	Not Relieved	Relieved	Not Relieved	Relieved	Not Relieved	
Parenterally	4	1	39	5	1	....	50
Parenterally and orally	9	1	94	2	8	2	116
Orally	8	4	51	5	4	....	72
Totals	21	6	184	12	13	2	238
Total relieved							218
Not relieved							20

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The Non-Allergic Wheeze

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SUMMARY

Nearly every major disease of the lungs may be at one time associated with non-allergic wheezing and simulate asthma. The physiological production of wheezing is associated with air flowing through narrowed bronchi, and experimentally it can be induced when a high negative pressure is made in a tuberculous cavity. Wheezing is important as an early diagnostic symptom of polypoid bronchial tumors, both malignant and benign. By constantly keeping in mind the lesions which mechanically produce bronchial conditions which may cause non-allergic wheeze, appropriate diagnostic and therapeutic measures may be instituted early in the course of these diseases.

WHEEZING is so commonly associated with pulmonary allergic disease that this respiratory noise has come to be looked upon as almost pathognomonic of asthma. So close is this association in the minds of both the laity and medical profession that it has led to frequent mistaken diagnoses of several types of thoracic lesions as bronchial asthma. It is the purpose of this presentation to describe lesions observed by the author in lung, mediastinum, and tracheobronchial tree that made their presence known to the patient by a wheeze. The wheeze in these cases was not related to bronchial spasm and its cause was not allergic.

Before the common use of x-ray of the chest and bronchoscopy, a wheezing in the chest was often considered to be asthmatic, and testing for allergic reaction and treatment according to immunologic desensitization methods were instituted without these examinations being performed. Today, in well regulated practice, a wheezing patient receives an x-ray of the chest and fluoroscopic examination. In any case in which the wheeze is postural, unilateral, inspiratory, and of uncertain origin, bronchoscopic examination should be considered.

Perhaps the most logical background for suspecting that a wheeze is non-allergic is to understand the cause of such respiratory noises and to think of other diseases which mechanically produce conditions that may cause wheezing. Among such pathological conditions, pulmonary tuberculosis in its three main forms, cavitary, lymphoglandular and tracheobronchial, produces such a wheeze.

In cavitary tuberculosis, as a caseous area in the parenchyma is coughed up, air leaks into this parenchymal area through diseased tortuous bronchi of the segmental or subsegmental order. Mechanical narrowings are caused by tufts of granulation tissue jutting into these small bronchi, by edema and submucosal cellular infiltrations, and finally by scar tissue. This results in kinks and intrinsic stenoses, not only intraluminal, but also at the cavity-bronchus junction. Air flowing over these tubal narrowings produces the wheeze.

Experimentally it was possible to produce a wheeze audible without the aid of a stethoscope after establishing a high negative pressure within such a tuberculous cavity. This wheeze was present throughout both the inspiratory and expiratory phases of at least one full respiratory cycle.

It is also likely that bronchi in the area surrounding the cavity give rise to numerous, short, high-pitched wheezes due to the thick grumous material lying within these bronchial lumina, which are apt to be of a segmental order. Such wheezes are usually altered by postural changes and by cough. They simulate closely the musical sounds heard in the chests of asthmatic patients, but differ in that the area over which the wheezes are loudest is usually lobar and unilateral. Concomitant bronchospasm of undiseased areas may be present. Tuberculosis of lymph nodes produces wheezing through effecting bronchial narrowing by external pressure. Children especially are subject to this type of bronchial stenosis, since the primary complex is associated with enlargement of mediastinal lymph nodes and these lymph nodes lie on the trachea and bronchial walls. Calcified lymph nodes may set up wheezing in the trachea and in large and small bronchi. When the cardinal symptom of calcified lymph nodes is not hemorrhage, wheezing usually is the presenting complaint.

Tracheobronchial tuberculosis may be present in a patient even though x-ray films show no definite signs of disease. Often the wheeze set up by subacute hypertrophic bronchial ulceration is the patient's first complaint and productive cough sets in later when cavitation is likely to make its appearance. Disease of the lower lobes is prone to produce this picture and positive sputum is difficult to obtain before large cavities are formed. Bronchoscopic examination usually yields information leading to the correct diagnosis, since bronchial smears made directly from the ulcerations are positive for acid-fast bacilli. Treatment with streptomycin often re-

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stores the bronchoscopic appearance to normal and the wheeze disappears. The following cases illustrate these features.

CASE REPORTS

Case 1: A white female, aged 32, entered the Cedars of Lebanon Hospital, August 8, 1947, complaining of weight loss and wheezing of six months' duration following recent release from a European displaced persons camp. There was a pronounced wheeze in the left chest which was heard on both inspiration and expiration. Auscultation disclosed the wheeze was transmitted to the right chest. Sputum was negative for acid-fast bacilli.

After the patient had been examined to determine if the cause were allergic, bronchoscopic examination disclosed subacute ulceration about the mouth of the superior segmental bronchus of the left lower lobe. Smears from this area were positive for acid-fast bacilli. The patient was transferred to the Los Angeles Sanatorium, September 5, 1947. New x-ray films of the chest disclosed a cavity in the lower left lobe. After use of streptomycin, pneumoperitoneum and left phrenic nerve crushing, the wheezing cough ceased and the cavity closed. Sputum and gastric examinations have been negative on smear and culture for 12 months and the disease is considered arrested.

Case 2: A white female, aged 25, entered the Los Angeles Sanatorium, April 19, 1938, with pulmonary tuberculosis of the left lung and hydropneumothorax. At the time of onset of symptoms in 1920, there had been pronounced wheezing as well as cough. Examined for allergic reaction in 1921 because of hay fever, she was found sensitive to a number of inhalants. Spontaneous left pneumothorax occurred in 1931 and resulted in increased wheezing. The wheezing diminished in a few days and the lung then was atelectatic. Tuberculous mixed infection, pleural empyema with bronchopleural fistula, occurred. This was treated by thoracoplasty and drainage. Wheezing persisted intermittently.

Bronchoscopic examinations were begun in February, 1932, and were repeated every few months for 14 years. These examinations always disclosed a narrowing of the left stem bronchus to one-eighth inch in diameter at its bifurcation, with varying degrees of subacute hypertrophic ulceration. Wheezing and cough continued intermittently until November 4, 1946, when the patient was transferred to Cedars of Lebanon Hospital and a left pneumonectomy with resection of the bronchocutaneous fistula was performed. An unexpected finding was a broncholith (Figure 1). Recovery was uncomplicated and since then the patient has not complained of wheezing.

In this case the main tuberculous disease was bronchial in character and wheezing was prominent. Although the patient had a background of allergic disease (hay fever), the early use of the bronchoscope in 1932 gave the diagnosis. Pneumonectomy is the curative treatment in such cases and in this one the wheezing did not recur.

Pulmonary calcifications as lung stones or as extrabronchial masses producing external bronchial pressure occur in coccidioides, histoplasmosis, and chronic non-tuberculous pulmonary suppuration, as well as pulmonary tuberculosis. Calcium salts are deposited in the lymph masses draining the diseased areas (Figure 2). After the salts form hard, irregular, often sharp concretions, they may erode or press upon the bronchi. Thus bronchial stenosis with wheezing results.

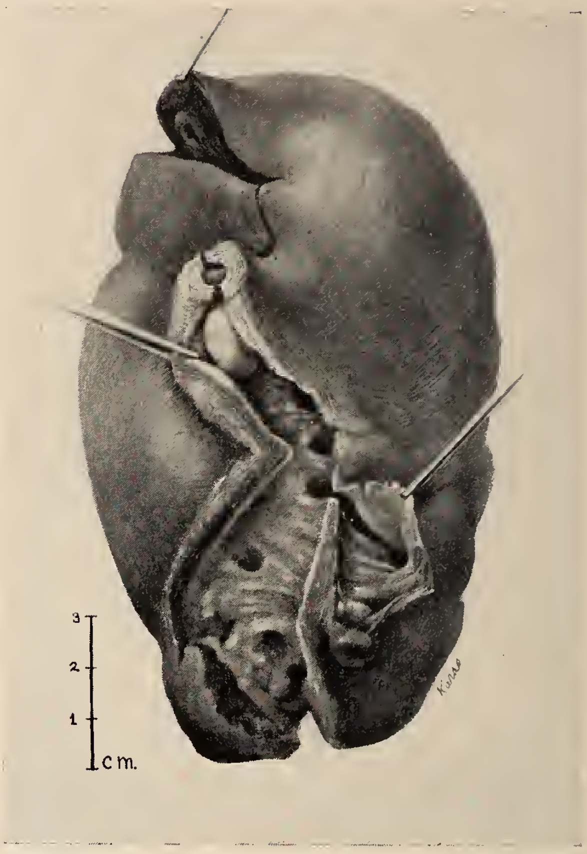

Figure 1—(Case 2) Tuberculous bronchial stenosis with broncholith.

CASE REPORT

Case 3: An obese white female, aged 50, was admitted to the Cedars of Lebanon Hospital, September 20, 1947, with a diagnosis of a mass in the upper lobe of the right lung. There was a history of wheezing and chronic cough of several years' duration, the cause of which had been variously diagnosed as asthma, cardiac disease and tuberculosis. After a small hemoptysis, a bronchoscopic examination revealed a distortion of the right upper lobe area. A right upper lobectomy was performed and a large paratracheal calcified mass also was removed. The removed lobe showed large, calcified masses obstructing one of the segmental bronchi to the right upper lobe. There was no evidence of tuberculosis. Wheezing did not recur in 20 months of follow-up.

Bronchiectasis is often associated with wheezing and in some cases there is a large bronchospasm factor. Granulation tissue, thick secretions, and bronchial stenosis contribute to the wheeze. Psychosomatic factors are not uncommon. Bronchodilating drugs may contribute to the relief of symptoms. Perhaps no other group of patients is more apt to be treated for bronchial asthma with underlying bronchiectasis undetected. Upper lobe bronchiectasis is especially likely to be of the sicca variety without much production of sputum. Wheezing is often brought on by exertion and sudden postural changes. Occasionally lower lobe bronchiectasis before irreversible suppuration occurs may be associated with such wheezing. After suppuration, unless stenosis is present, patients are relieved of wheezing by pos-

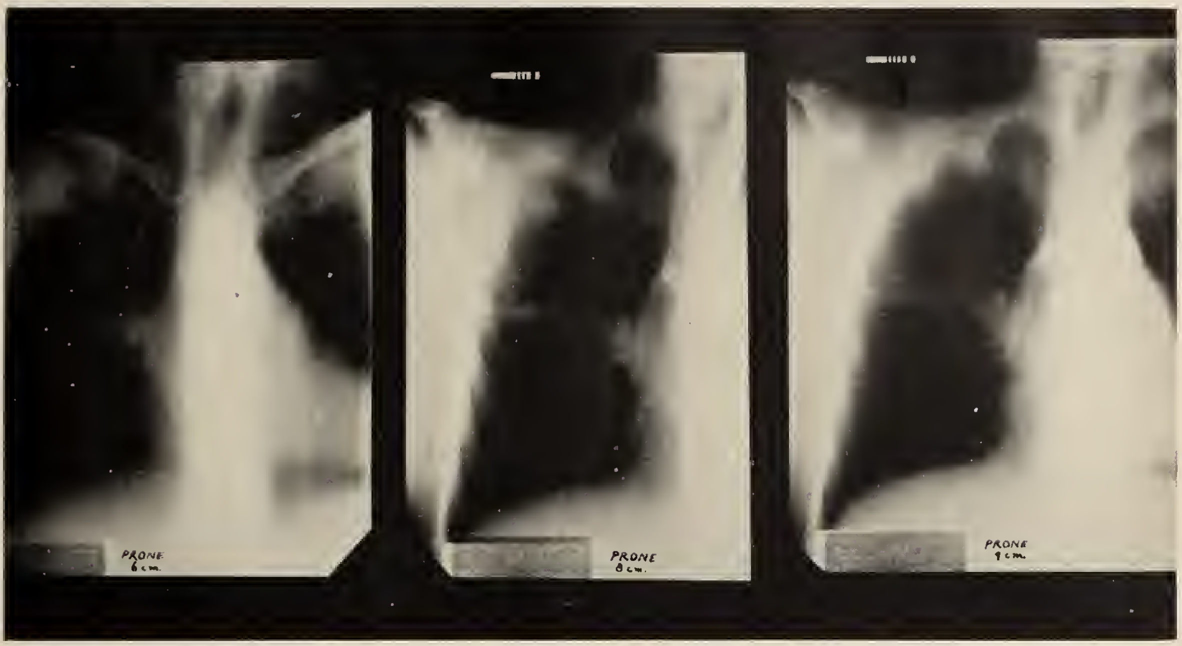

Figure 2.—(Case 3) Planigrams showing calcified masses in lower segmental (basal) bronchus, right upper lobe, and paratracheal area.

tural drainage. However, those who survive many years of extensive bilateral bronchiectasis develop associated emphysema and cor pulmonale which will restore wheezing.

CASE REPORT

Case 4: A white male, aged 25, entered Cedars of Lebanon Hospital, August 30, 1946, with a diagnosis of bronchiectasis of the left lower lobe and lingula of the left upper lobe. In childhood the patient had been considered asthmatic because of wheezing and a choked-up feeling on exercise. This persisted until four years before admission, when he had pneumonia several times, followed by production of eight ounces of foul sputum daily.

On physical examination, wheezing rales were heard over the left lower chest. Bronchoscopy disclosed polypoid hypertrophy of the left lower lobe and bronchograms revealed cylindrical and cystic bronchiectasis in the left lower and lingula of the left upper lobe. Left lower lobectomy, with resection of the left lower lobe mucosa and lingula of the left upper lobe, was performed September 30, 1946.

Convalescence was uncomplicated and the patient left the hospital on the eighth postoperative day. Free of wheezing, cough and sputum, he returned to work as a barrel maker one month after operation.

This case is illustrative of severe bronchiectasis with psychosomatic symptoms. To assure complete recovery in such cases, all of the diseased area must be removed, as it was in this case. Symptoms with wheezing are especially apt to persist when the diseased lingula is not removed.

Cysts of the lung are especially likely to cause wheezing and shortness of breath. Thin-walled balloon cysts may fill an entire pleural cavity. From experimental work with tuberculous cavities, it is deduced that the wheezing is most apt to occur when the balloon cyst is being inflated and the pressure is highly negative in the cyst. Kinking of bronchi due to sudden changes in size within the lung as the balloon inflates is also probably a cause of wheezing. Until an x-ray film discloses a collapsed lung or outlines of a cyst, these conditions may masquerade as asthma.

CASE REPORT

Case 5: A 61-year-old woman entered Cedars of Lebanon Hospital, September 25, 1948, complaining of dyspnea, wheezing, and intermittent pain for many years. As a young woman, she had been treated by allergists and cardiologists. The diagnosis of idiopathic recurrent spontaneous pneumothorax was made. Although there was not full response to the usual measures, serious symptoms were lessened. Due to dyspnea, the patient reached a state of acute anxiety and remained in bed for weeks at a time. She entered the hospital for exploratory thoracotomy.

The patient appeared to be well nourished and in no acute distress. At times an audible wheeze was heard without the aid of a stethoscope. Otherwise breath sounds were distant and diminished on the right and the percussion note was tympanitic.

At operation a large balloon cyst was removed. It filled the entire right pleural cavity and herniated into the left chest. After removal of the cyst the lung expanded completely, since only a small portion of the lung had to be removed with the cyst.

Cancer of the lung may produce polypoid excrescences into bronchi, and if the tumor is peripheral the first and only sign may be a wheeze. This sign of early cancer is extremely important as a diagnostic aid. The wheeze is often elicited only in certain postures. Asthma is frequently an early diagnosis in such cases. Careful x-ray studies, with lateral, oblique and planigram views, together with bronchoscopy, sputum examination for neoplastic cells, and exploratory thoracotomy are often necessary to prove the diagnosis. Occasionally asthma is present also, and when it is the cancer may be overlooked.

CASE REPORT

Case 6: A white, nervous, anxious female, aged 54, entered Cedars of Lebanon Hospital, June 23, 1948, with a diagnosis of tumor of the upper lobe of the left lung. A mass had been present, slowly increasing, for approximately one year. The patient was hypertensive, and gave a history of asthma for many years. The tumor mass was discovered on fluoroscopic examination during a gastrointestinal study. Physical examination disclosed wheezing rales bilaterally over the bases. Bronchoscopy, June 23, 1948, did not reveal any encroaching mass and both biopsy and examination for tumor cells were negative. Exploratory thoracotomy and left pneumonectomy were performed July 27, 1948. The surgical specimen disclosed an epidermoid carcinoma; mediastinal lymph nodes contained no neoplasm. Postoperative convalescence was complicated by dyspnea and wheezing, worse with anxiety, and the patient came under the care of allergists for this asthmatic condition. She was ambulatory and did some housework, and after 11 months no sign of metastatic disease existed.

Conditions caused by benign polypoid bronchial tumors such as bronchial adenoma, fibroma, and ecchondroma are often first diagnosed as asthma because of the incomplete bronchial narrowing in lobar and stem bronchi. Hemoptysis with distal suppuration usually supervenes when obstruction becomes complete and constant. Wheezing is a usual early sign, and delay in diagnosis is due to considering wheezing to be asthmatic. Bronchoscopy almost always makes the diagnosis because of the location of the lesion within a bronchoscopically visible bronchus.

CASE REPORT

Case 7: A white female, aged 17 years, who complained of asthma of six months' duration and who had had pneumonia a month previously, was admitted to the Harbor Branch of the Los Angeles County General Hospital, April 1, 1949. Six months previously, wheezing had been so pronounced that she had been placed under the care of an allergist. An x-ray film of the chest at that time showed no essential abnormality. After four months, a large hemoptysis occurred and the patient was referred to a tuberculosis hospital where bronchoscopic examination revealed a complete obstruction of the left stem bronchus by a polypoid tumor. Biopsy showed this to be an adenoma and exploratory thoracotomy was performed April 4, 1949. A tumor mass which was attached by a stalk three-eighths inch thick was removed through a transpleural bronchotomy incision (Figure 3). This adenoma was removed in toto and the bronchial incision repaired without stenosis being produced. The left lung aerated well after operation and the patient was discharged on the tenth postoperative day.

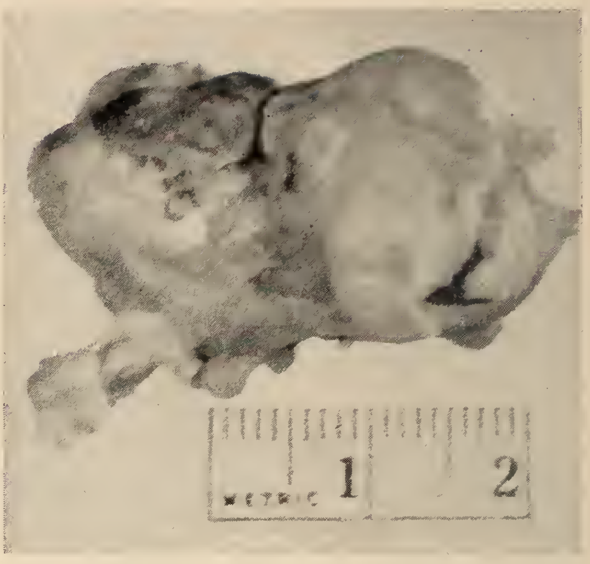

Figure 3.—(Case 7) Bronchial adenoma.

Mediastinal tumors, because of their proximity to trachea and large bronchi, frequently produce wheezing. Dermoids, lymphomata, Hodgkin's disease and thymic tumors may masquerade as asthma. Aneurysmal dilatation of the aorta and pulmonary artery, as well as auricular enlargement in mitral stenosis, are other lesions which produce pressure that causes wheezing. Because thymic tumors are apt to be associated with myasthenia gravis, wheezing may have a double origin due to prostigmine effects of increasing bronchial secretions and inability of the patient to cough vigorously to remove the mucus.

Foreign bodies in the bronchus, of course, are notorious sources of wheezing, especially in children. History of aspiration is not always obtained and organic foreign bodies, such as peanuts, are not radiopaque. Wheezing and dyspnea are the early chief symptoms of a disease easily confused with asthma. As time goes on, suppuration, hemoptysis, fever, or pneumonia usually supervenes so that some other diagnosis is suspected. X-ray studies and bronchoscopy are the main diagnostic measures, but even then the diagnosis may not be made until the lobe has been surgically removed because of suppurative disease.

A Consideration of Some Factors Causing Death In the Operating Room

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SUMMARY

Some of the causes of deaths in the operating room are related to anesthesia. In some cases death occurs because of lack of understanding of certain factors which are subject to control by the surgeon or the anesthetist.

Simple comparisons of the rate of deaths from such causes in one hospital with the rate in another are meaningless because of the many variables involved. A better avenue to the knowledge that may prevent untoward deaths is exposition of the causes in each case. By this means the causative factors may be fully disclosed, emphasized, and guarded against.

In this presentation the author has classified the causes of 46 operating room deaths that occurred in the Los Angeles County General Hospital in a period of 21 months, and has discussed the causes individually.

IT is the purpose of this presentation to consider some of the factors which enter into the death of patients while on the operating table. It is hoped that this discussion will contribute to a wider and fuller understanding of the problem of operating-room deaths in this area and to the formation of an anesthesia study commission in the Section on Anesthesiology of the California Medical Association for the purpose of reducing the number of these cases in all hospitals. The American Medical Association recommends the formation of such study commissions. The work of Ruth, Haugen and Grove[4] has given evidence of the practical working of such a commission. The necessity for such commissions with integration on a national scale has been pointed out by Gregory.[2]

In considering deaths in the operating room, it is not sufficient to state gross statistics for one institution, compare them with data from another, and conclude that the institution with the lower gross rate has the better record. There are too many intangibles, such as size and type of hospital, type of patients and training of personnel, for comparison of this kind to be valid. Bishop[1] cited figures showing gross rates varying from 1 in 503 to 1 in 3,336. A comparison of that kind means nothing. Bishop did, however, point out one very significant fact—that from data of the U. S. Bureau of Census and other sources for the years 1922 through 1936, it appeared that the number of deaths associated with anesthesia in the United States was not decreasing. The author knows of no recent evidence that it has since decreased significantly.

If deaths relating to operation and to anesthesia are to decrease, it would appear essential that the cases be discussed objectively and in the light of individual circumstances. Since the anesthesiologist is always involved and frequently blamed, and not infrequently responsible, it is not only his sole recourse but a definite obligation to his patients, to his fellow anesthesiologist, and to himself to bring these cases to discussion so that (1) causes can be determined, (2) all can learn so as to avoid a repetition, and (3) by the dissemination of knowledge patients will benefit and the professional level of the specialty improve.

In the Los Angeles County Hospital, from the period July 1, 1946, to April 1, 1948, there were approximately 28,000 anesthetics administered by the anesthesia service. This total does not include local infiltration anesthetics done by the surgeons. There have been 46 deaths in the operating room incidental to anesthesia or operation, or 1 in 608 patients requiring the services of a member of the anesthesia department. (It should be reemphasized that these figures mean nothing without comparison with figures derived from other hospitals of the same type and with the same categories of personnel.)

Although it is not practical here to give a full case history of each of the 46 patients forming the basis of this discussion, it is possible to try to select certain situations that have contributed to these deaths. As closely as can be determined, the factors shown in Table 1 played a prominent role in the 46 operating-room deaths.

Each of the categories shown in the table deserves some explanation.

In the majority of cases, death in the operating room was ascribable to preoperative conditions to be expected in a large general hospital. The causes of the conditions varied widely, from multiple stab wounds to gangrene of the bowel. It was recognized by surgeons and anesthesiologists that these patients posed extremely serious risks but that operation was imperative.

The occurrence of pulmonary embolus or acute cardiac catastrophe is a phenomenon which is totally unexpected on the basis of the patient's condition during operation. All patients who died of those causes had undergone low spinal anesthesia for either fractured hips or low genito-urinary opera-

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Table 1.—*Factors Playing Prominent Role in 46 Operating Room Deaths*

Shock related to the preoperative condition of the patient	14
Pulmonary embolus or cardiac catastrophe during operation	6
Severe hemorrhage	4
Circulatory collapse	4
Aspiration of stomach contents and subsequent anoxia	4
Acute cardiac arrest during operation	3
Cardiac arrest due to reflex on induction, emergence, or light anesthesia	3
Laryngospasm and subsequent anoxia	2
Respiratory and circulatory failure following spinal anesthesia	2
Convulsion	2
Immediate postoperative atelectasis	1
Immediate postoperative tension pneumothorax	1
Total	46

tions which had progressed for an hour or more in an entirely satisfactory manner without any evidence of cardiac or respiratory embarrassment. The patients then complained of sudden pain in the chest or head and immediately collapsed. All of them were over 70 years of age.

Deaths incident to severe hemorrhage were a result of uncontrolled bleeding from large pulmonary or renal vessels. Such hemorrhages occurred in patients with either malignant disease or chronic inflammatory reaction at the site of operation.

The patients who died following aspiration of stomach contents and subsequent anoxia were of two categories: (1) Emergency patients whose stomach contents were not aspirated beforehand, and (2) those in whom Levine tubes did not function properly. One patient regurgitated following a spinal anesthetic and aspirated a quantity of the regurgitated fluid. This patient died some seven hours after the accident.

Acute cardiac arrest occurred in some cases during the induction period of anesthesia and in others after operation was established. Two of the deaths caused by cardiac arrest occurred during thoracic operations and one during a neurosurgical procedure with local anesthesia.

One of the patients who died from a reflex on induction or emergence had acute cardiac arrest immediately on insertion of an endotracheal tube—the so-called vago-vagal reflex. One of the patients died of the same kind of reflex when a bronchoscope was inserted after the operation. The third patient went into a profound collapse from a reflex following the pulling together of skin flaps after radical mastectomy. This patient had done very well up to that moment and it is believed that some kind of reflex was initiated by the tension on the chest wall. The patient was in the first plane of surgical anesthesia.

The two patients who died following laryngospasm and subsequent anoxia had been given pentothal for induction and they could not be intubated. In one of these cases tracheotomy was done after the laryngospasm occurred, but it was too late for effective resuscitation. In the other case the patient collapsed too quickly for tracheotomy to be accomplished. Both patients were in very poor physical condition and were given only sufficient pentothal to put them to sleep in an effort to circumvent any second stage excitement under general anesthesia.

One of the patients who died following respiratory and circulatory failure after the administration of a spinal anesthetic was being prepared for a cesarean section. The dose of anesthetic was small but the level climbed rapidly and too high. Acute collapse resulted, and all resuscitative measures were ineffective. The second patient, who was to have undergone appendectomy, collapsed following the administration of a spinal anesthetic. The dose of the drug given was considered to have been too large, although the pattern of the patient's dying was not that ordinarily associated with a too high level of spinal anesthesia.

The two patients who died of convulsions were in terminal condition when they were taken to the operating room. One of them received no anesthesia whatsoever and died before operation started. The other died following the application of less than ¼ cc. of 2 per cent pontocaine to the pharynx in preparation for the passage of an endotracheal airway under topical anesthesia. It is believed that the application of pontocaine was only coincidental.

The patient who died of immediate postoperative atelectasis was taken to the operating room for cordotomy for intractable pain due to metastatic malignant disease of the chest. This patient did very well while lying prone, but when she was turned over following operation, complete inspiratory obstruction ensued and it could not be broken up with any instrumentation. It is believed that a ball valve was set up by a piece of malignant tissue.

The patient who died of immediate postoperative tension pneumothorax had undergone esophagotomy in which the contralateral chest was inadvertently opened. Despite all precautions to see that the lungs were fully expanded, pneumothorax developed on the contralateral side postoperatively. Although promptly relieved, it resulted in respiratory and circulatory embarrassment that led to death.

In addition to the 46 patients who died in the operating room, there were two who must be considered to have died as the result of accidents. In one case cardiac action was restored after acute cardiac arrest had developed at the termination of operation. However, the patient died 12 hours later without regaining consciousness. The clinical course of this patient was identical to that described by Lampson, Schaeffer, and Lincoln,[3] and the same resuscitative measures were used as in their case, in which the patient recovered. However, in the case here reported cardiac arrest was complete, while in the case cited by Lampson the heart was fibrillating.

The death of the second patient who died outside the operating room was caused by total respiratory obstruction following resection of the mandible.

Death occurred several hours after the operation. The patient was conscious at the time the obstruction developed, and although it was relieved the strain had been too great. Since this accident, a tracheotomy tube has been inserted routinely following resection of the mandible, and this has been found to be a life-saving measure. However, it should be noted that even with this precaution obstruction can occur. In one case obstruction developed, several hours after the patient had been returned from the operating room, when the tube became displaced from the trachea.

From the accumulated experience in these cases, it has become evident that certain preoperative precautions can be instituted which may in the future reduce the incidence of operating-room deaths. The discussion of all such cases in all hospitals would be of value because it would permit the accumulated experience to be disseminated and thus perhaps to contribute significantly to a reduction in the number of such deaths throughout the country.

One of the most important measures which can be instituted to reduce the number of accidents occurring in the operating room is thorough aspiration of the stomach of patients who are to be operated upon as an emergency measure. Experience has shown that it is entirely too hazardous in such circumstances to take the patient's word that he had no food or drink for a period of hours. The memory of the patient for recent events is frequently clouded. Further, it seems conclusive that gastric motility and digestive processes cease when a patient is severely injured or in pain. Since regurgitation of stomach contents is a hazard which has contributed to operating-room deaths, it has become an absolute rule in the Los Angeles County General Hospital that the stomach contents must be thoroughly aspirated before anesthesia is administered. No such accident has occurred in this hospital in a period of more than a year since that rule has been in effect.

Odd circumstances surrounded the death of one of the patients who died of cardiac arrest. The operation to be done was ligation of a patent ductus arteriosus. So far as could be determined, the patient was in good condition physically. However, it was ascertained later that he had in all seriousness told his friends and the nurses on the ward that he was going to die. Neither the surgeons nor the anesthesiologist were informed of this statement. The course of this patient during induction and the first part of the operation was entirely uneventful. Cardiac arrest occurred without warning. Although it was found at postmortem examination that the patient had acute myocarditis, the factor of his prediction must be borne in mind.

The accidents which were attributed to the so-called vago-vagal reflex point out the hazard of instrumenting the larynx of a patient who is not well anesthetized. The collapse that followed the pulling together of skin flaps emphasizes the importance of gentleness even with a patient under anesthesia.

The cases in which laryngospasm developed following the administration of a small quantity of pentothal for basal narcosis serve to illustrate the importance of serious deliberation before using this drug in acutely ill and disturbed patients.

The deaths that occurred as a result of respiratory and circulatory failure following spinal anesthesia emphasize the necessity for constant vigilance in order that untoward occurrences may be detected at the earliest possible moment and thus permit the institution of restorative measures before collapse has occurred.

There were two cases in which certain problems of principle were presented. In one case the anesthesiologist felt that the patient did not appear to be in good condition although results of laboratory examinations were normal. This particular anesthetist had administered two previous anesthetics to the same patient in a series of operations for a cleft palate. However, at the insistence of the surgeon that the patient was in good condition, anesthesia was administered by the open drop technique. Thirty minutes after anesthesia was started the patient suddenly had a severe respiratory and circulatory collapse and died. The point involved in this case, in the author's opinion, is that the anesthesiologist must assume a definite responsibility regarding the administration of anesthesia for certain patients, since in many respects the art of anesthesia is based upon the appreciation of certain intangibles in relation to the condition of patients.

In the second case involving a point of principle, the blood pressure of the patient had been recorded several times in the ward record at 180 mm. of mercury systolic and 110 diastolic. A small amount of premedication consistent with advanced years had been given. However, when the patient was taken to the operating room, the blood pressure was found to be approximately 110 mm. systolic and 60 diastolic. His general appearance was not unsatisfactory. Spinal anesthesia was administered for the open reduction of a hip. The patient did well for somewhat over one hour. Blood pressure did not fall below the pre-anesthetic level. Both blood and oxygen were administered during the procedure. However, acute cardiovascular catastrophe developed suddenly and the patient died. It is the author's feeling that any pronounced alteration in blood pressure in an aged patient contradicts the administration of an anesthetic, since such patients do not have the reserve to accommodate to the alteration in vascular dynamics plus the additional strain of anesthesia and operation.

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CASE REPORTS

- Constricting Exercises to Correct Postoperative Fecal Incontinence
- Erythermalgia
- Intermittent Hydrarthrosis

Constricting Exercises to Correct Postoperative Fecal Incontinence

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SOME degree of fecal incontinence is a distressing occasional aftermath of operations that involve the cutting of the sphincter ani, and operations performed with the intent of curing it may be unsuccessful.

The following report illustrates a method of treatment which enabled a patient so afflicted to regain complete control.

The patient, a young woman, had been operated upon for perirectal infection. Fecal incontinence had ensued, and another operation had not relieved it. Consequently, restraining opiates had been given and the patient was taking them when examined by the author.

Three fingers could be readily introduced into the anal canal. Upon them the patient could exert a feeble circular pressure. She was told that some of the circular fibres of the sphincter were still intact and that, just as a prizefighter could train and strengthen his hitting muscles by hitting exercises, so she could train and strengthen these fibres by constricting exercises.

The largest of a set of Young's anal canal dilators was introduced. This the patient could just retain. She was given the dilator and instructed she should, while lying down, introduce it several times a day, and each time try intermittently for a few minutes to grip it. She was informed she would soon be able to do this, and that then she would be given a smaller dilator and so on gradually until she could grip one of the smallest diameter. The patient followed the procedure conscientiously and in a few weeks reported that she had regained control except when walking.

Directed to stand up, to put her heels together, to separate widely the toe regions, and then to contract her buttock muscles, she at once felt the added protection. She was advised to walk with the feet thus splayed and while walking to practice the constricting exercises. In a few weeks the incontinence was completely corrected.

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Erythermalgia

Report of a Case, and Response to a New Therapeutic Approach

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SINCE the original report of erythermalgia by Weir-Mitchell in 1872[16] and his subsequent suggestion in 1878[17] that it be named "erythromelalgia," little was done in attempting to discover a rational method of therapeusis till the latter 1930s. In 1937 Mufson[18] suggested that the pronounced vasodilatation seen in this disease might be due to a lack of vasoconstrictor stimuli, and advised the use of epinephrine hydrochloride, either by inhalation or hypodermic administration. This was soon followed by Smith's and Allen's report in 1938[19] in which they recommended that the term "erythermalgia" be substituted for the original name suggested by Weir-Mitchell, and advocated the use of acetylsalicylic acid. They reported pronounced relief from the use of 0.65 gm. four or five times daily, the relief from a single dose sometimes lasting several days. Although no adequate explanation existed for this, as acetylsalicylic acid, except for its analgesic effects, pharmacologically at least, tended toward a greater cutaneous vasodilatation, Allen, Barker and Hines[2] came to regard this phenomenon as almost diagnostic of this disease process. In the light of more recent knowledge, the explanation of this may lie in the fact that salicylates in toxic doses are strong inhibitors of the enzyme hyaluronidase.[20] Although hyaluronic acid is not present in the capillary wall itself,[6, 15] it is known to make up the intercellular cement substance of the supporting connective tissue of these small vessels, and it is because of the weakening of this connective tissue cement substance that capillary damage occurs.[6] Possibly patients with erythermalgia may be more susceptible to this action of acetylsalicylic acid so that only small doses may be necessary to abolish the action of hyaluronidase and thus prevent the extravascular edema with the consequent distressing soft-tissue swelling. Despite the foregoing, however, Wright[22] has stated that in his experience acetylsalicylic acid gives patients only temporary relief and that the results of the administration of epinephrine by either route are far from striking.

Following the lead of Mufson,[18] whose concept of the physiopathology in this disease process seemed to be capable of explaining all the symptoms, it was decided to use a probable adrenalin precursor, which could be taken orally, for the purpose of producing a humoral antihistaminic vasoconstriction. For this purpose the amino acid 1(—)-tyrosine together with its co-enzyme precursor, pyridoxine hydrochloride, was chosen as the form of therapy for a patient afflicted with erythermalgia. As there is evidence that tyramine, the amine derived from the amino acid tyrosine, may be identical with sympathin,[7] the rationale for its use seemed even more justified.

CASE REPORT

A white married woman, 30 years of age, was referred for study and treatment on account of a vasodilating type of peripheral vascular disease process, which had been diagnosed as erythermalgia and which she had been aware of since July 1947. The patient said that at that time, for no known reason, she first experienced a hot, and at times burning, throbbing pain in the fingers and toes, which was associated with swelling and reddening of the affected areas. This always followed either exposure of the extremities to heat (hot dishwater) or increased activity of the affected digits (knitting, etc.) and was relieved by immersing the parts in cold water. The swelling and redness would persist for hours after the disappearance of pain, so that the fingers of both hands generally appeared turgid. Because of this she had begun to shun social gatherings, as she was ashamed of the appearance of her hands. The upper extremities had always been much more affected than the lower, and the right upper extremity more than the left. On further questioning she admitted noticing an increasing intolerance to heat during the previous 12 months, so much so that she at times felt as if she could not get her breath, and would have to open the windows to get relief. Three weeks previously a similar burning pain had developed in the left shoulder. She had attempted to relieve this with hot applications, only to discover that heat made it unbearable. The patient denied numbness, tingling, coldness, blanching or cyanosis of the affected digits, and stated that she knew of no family history of this disease. Prior to mid-1947 she had lived in New York where she had had no difficulty.

The patient stated that she had always been in good health until 1944, when she had had an appendectomy and the removal of cysts from the uterus and one ovary (presumably the right). Since then she had only had occasional attacks of frontal sinusitis which were always promptly controlled with penicillin inhalations. In January 1948 moderately severe left pyelonephritis had developed but it had responded well to penicillin. Menstrual periods had begun at the age of eleven, had always been regular, and the flow had always been moderate in character and duration. However, she had always been troubled with premenstrual cramps, which at times were severe enough to cause her to go to bed.

The family history was non-contributory. As for her habits, she generally smoked about ten cigarettes daily, used no alcohol as it made her hands swell. She denied using any drugs.

The patient had been examined and treated by the referring physician. Examinations done in March 1948 revealed erythematous, hot, swollen fingers and toes, a condition which could be brought on by immersing the extremities in hot water. An electrocardiogram showed no abnormality. The basal metabolic rate was —11. The blood cell count was within normal limits except for a relative eosinophilia (7 per cent), and the sedimentation rate was 4 mm. in one hour. Urine was normal. X-ray films of the chest, fingers and toes showed no evidence of disease in the lungs, bones or joints. Results of a cephalin flocculation test were negative. During the subsequent months the patient was treated with acetylsalicylic acid, then with propadrine hydrochloride orally, and finally with estrogen therapy parenterally, all without significant relief. She stated that she was unable to tolerate acetylsalicylic acid or propadrine hydrochloride, as the former caused gastric irritation and nausea, while the latter, in addition, was associated with considerable nervousness.

The patient was well-developed, alert and cooperative. The height was 67 inches and the weight 146½ pounds. The vessels in the fundus of the right eye were engorged, particularly the veins, but otherwise the eyegrounds were normal and there was no evidence of other abnormality in the head, neck, eye, ear, nose or throat. Except for occasional inspiratory rhonchi throughout both lower lung fields posteriorly, and a well-healed mid-rectus, lower abdominal scar, nothing of significance was discovered as regards the trunk, or thoracic, abdominal or pelvic organs. The blood pressure was 116 mm. of mercury systolic and 70 mm. diastolic on both sides.

All the fingers were erythematous, swollen to the point of being turgid, and warm. This was also true of the toes, but in them the surface temperature was somewhat lower. Peripheral arterial pulsations were present throughout and of excellent amplitude. Results of elevation-dependency tests were normal as regards return of color and venous filling time. Prolonged dependency led to the appearance of a mild cyanotic hue in all the toes. Skin temperatures and measurements of the circumference of various areas of the extremities appear in Table 1.

Therapy was instituted on January 17, 1949, 600 mg. of l(—)-tyrosine being given simultaneously with 24 mg. of pyridoxine hydrochloride* orally five times daily. The patient was told to return in one week. At the end of that time interval, she stated that four days after starting on this treatment she noticed a tingling sensation in the lower legs and feet and the lower arms and hands, on exposing the extremities to heat. The throbbing pain had disappeared as well as the swelling, but the hands and feet were now so cold that she had to warm them by artificial means. She could relieve the tingling by moving the affected parts of the involved extremities. Examination at this time revealed definite coldness of the hands and feet and wrinkling of the superficial skin of the fingers and toes. Because of what was interpreted as an overdosage, the medicinal compounds were decreased to l(—)-tyrosine 400 mg., and pyridoxine hydrochloride 16 mg. four times daily—before each meal and at bedtime. Care was taken not to administer ferrous salts, which have been shown to strongly inhibit the irritability of the musculature of the blood vessels to vasodilating and vasoconstricting agents.[13]

Since then the patient has continued on this dosage and has no recurrence of the symptoms associated with the distressing vasodilatation in the digits or of those connected with increased intolerance to heat. During the first week in February pain and tenderness in the right costovertebral angle developed in association with frequency and urgency of urination. Analysis showed the urine to be normal. The condition responded quickly to therapy with penicillin, sulfa drugs and tincture of hyoscyamus. An intravenous pyelogram

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*l(—)-tyrosine and pyridoxine hydrochloride tablets used in this study were donated by Organic Chemicals, Inc., Pasadena, California.

TABLE 1.—*Measurements of Circumferences of Extremities and Readings of Temperatures at Various Times during Course of Treatment.*

	MEASUREMENTS (CENTIMETERS)							
	Date							
	1-17-49		1-24-49		2-25-49		3-16-49	
Area	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.
Thumb, proximal phalanx	6.7	6.6	6.3	6.1	6.3	6.2	6.4	6.2
Metacarpus	20.2	19.6	19.8	19.2	19.9	19.2	20.0	19.3
Wrist	15.7	15.5	15.6	15.6	15.6	15.7	15.8	15.6
First toe, proximal phalanx	8.2	8.2	7.6	7.8	7.5	7.8	7.5	7.9
Metatarsus	24.4	24.8	24.0	24.0	24.2	24.0	24.0	24.1
Ankle	22.4	22.5	22.4	22.4	22.4	22.6	22.5	22.5
Calf	33.3	33.5	33.2	33.6	33.4	33.6	33.2	33.4
	TEMPERATURES (CENTIGRADE)							
Room Temp.	24.4		24.0		24.0		24.4	
Forehead	34.5		33.8		34.2		34.0	
Index finger	33.2	33.0	29.4	29.0	33.4	33.2	33.4	33.4
First toe	25.6	25.4	23.8	24.0	25.8	25.6	25.8	25.4
Forefoot	28.0	28.4	26.6	26.4	28.2	28.6	28.5	28.4

done on February 3, 1949, revealed a ptotic right kidney with a double pelvis, and what was interpreted as a probable aberrant vessel or kink at the right pelvic-ureteral junction without evidence of back-pressure. No calculi were noted along the urinary tract. It is of interest that since the start of the therapy the patient has had no premenstrual cramps. Skin temperatures and measurements of the extremities taken at random during the period of treatment appear in Table 1.

DISCUSSION

Several of the natural indispensable amino acids are known precursors of humoral vascular stimulators. For example, the amino acid *histidine* is known to give rise to its amine, *histamine*, through the decarboxylation of its side-chain, and possibly by further chemical interactions to other histamine-like substances. In direct opposition to the latter, the amino acid *tyrosine*, which when decarboxylated produces the amine *tyramine*, is known by virtue of this last compound to produce an adrenalin-like effect.[12] Tyrosine however, unlike histidine, is not considered by most authorities to be an indispensable amino acid in view of the fact that it is thought to be a derivative of the essential amino acid *phenylalanine*.

In 1944 Bellamy and Gunsalus[5] demonstrated that the organism Streptococcus fecalis through its enzyme *tyrosine decarboxylase* was capable of decarboxylating the amino acid 1(—)-tyrosine to its amine, *tyramine*. In the same year they announced that such decarboxylation required a co-enzyme which was a phosphorylated derivative of pyridoxine.[10] Such bacterial conversion, however, has been shown not to occur in the human intestine, as the pH of optimum activity for the bacterial enzyme, tyrosine decarboxylase, has been found to lie between 5 and 5.5.[8] As expressed by Hanke and Koessler,[11] the conversion of amino acids into their respective amines by bacteria "seems to be a protective mechanism which is resorted to when the accumulation of H ions within the organism's protoplasm is incompatible with its normal life processes." Gale and Epps[9] have further shown that in the definitely alkaline medium of the intestinal contents an alteration in the enzymic constitution of the bacterial cell takes place, and the bacterial reaction proceeds in an opposite way, the amino acid being deaminated to its keto acid in an effort to shift the reaction of the medium toward neutrality.

The evidence just stated rules out any production of the amine in question by intestinal bacteria. Such a reaction would then have to depend on the presence of a tissue enzyme. That such an enzyme exists was first shown by Holtz in 1937[12] and confirmed in the same year by Werle and Mennicken[21] working independently.

Thus the foregoing, in conjunction with the reactions to the administered compounds in the case reported, bears out the contention that the amino acid 1(—)-tyrosine is capable of being transformed into a humoral adrenalin-like substance with vasoconstrictor properties, when combined with the tyrosine-decarboxylase co-enzyme precursor *pyridoxine hydrochloride*. Previous trials with 1(—)-tyrosine alone or pyridoxine hydrochloride alone, by the author in other disease entities in which an over-histamine release is believed to be present, have been to no avail.

The response to therapy in the case here reported presents interesting physiological and physiopathological questions. It is to be noted that following the onset of therapy the patient complained of tingling in the extremities on exposure to heat, or on increased muscular activity. These are distinctly opposite to the original complaints of hot, burning, throbbing pains in fingers and toes when these were subjected to higher temperatures or the use of the parts was increased. As Anrep and his co-workers[3, 4] have shown that muscular contraction leads to a release of histamine, the patient's symptoms following an overdosage of 1(—)-tyrosine and pyridoxine hydrochloride can only be interpreted as an over-adrenalin-like action relieved by the histamine release brought about by increased muscular contraction.

Of interest also is the fact that despite the continued decrease in the circumference of the affected parts, the skin temperature, except during the immediate period following the time of overdosage, has remained unchanged (see Table 1). This, then, would tend to indicate that the pathological process was one involving the deeper structures, that is, the hypodermis and the underlying muscular tissue, primarily, and the superficial skin layer only secondarily. In support of this contention lies the fact that despite the return of the skin temperatures to the pre-treatment level following a reduction in dosage, the edema of the affected parts did not reappear. In this connection it should be noted that the circumference measurements seem to bear out that the swelling in the disease-process involves the more distal parts only of each affected extremity, that is, the digits and possibly the metacarpal and metatarsal areas.

That histamine, besides being a potent vasodilator, is a strong contractor of uterine muscle is a well-established fact. The observation of the disappearance of premenstrual cramps which had been constantly present in the patient for many years, coupled with the cessation of the increased intolerance to heat and the symptoms of the vasodilating disease process, raises the question of an over-histamine release process in the patient, starting many years ago, but first showing itself in the form of cyclic premenstrual muscle spasms. Should further studies prove this to be true, then the disease erythermalgia could be looked upon as a gradually increasing overhistamine production throughout a period of many years, until the point of actual production of subjective and objective symptoms is reached. This, then, might provide an explanation for the distressing intermittent cramps experienced by some women prior to each menstrual cycle. For these might well be a reflection of an excessive histamine action, evidencing itself through the known oxytocic action of this organic constituent. In support of this contention is the finding by numerous investigators, and culminated by the work of Ahlmark,[1] that during pregnancy, when uterine contractions must be at a minimum, the histaminolytic power of the blood increases approximately 600-fold, and that of the placenta approximately 18,000-fold.

Because of these interesting aspects of the problem, further study is at present being carried on in related processes thought to be connected with a similar increased vasodilating-agent production, namely, hypotension, hypoglycemia, true allergic asthma, and other related allergic states.

SUMMARY

A case of erythermalgia in a young woman is described.

The response of the disease to a new form of therapy consisting of the amino acid 1(—)-tyrosine and pyridoxine hydrochloride is related.

The possibility of an over-histamine action as the basic cause in this disease entity is expressed, and theoretical considerations of the physiological and physiopathological aspects of the disease are commented on.

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Intermittent Hydrarthrosis—Two Cases

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Review of the American literature since 1941 reveals no reported cases of intermittent hydrarthrosis, a condition which was first reported by Perrin[8] in 1845, and apparently again by the same author in 1878. Relatively few cases have been reported since then, apparently only 120 in all. Two additional cases are reported herein, in the hope that interest will be stimulated with improvement in treatment.

Two varieties of intermittent hydrarthrosis have been encountered and reported: (1) symptomatic intermittent hydrarthrosis, and (2) idiopathic intermittent hydrarthrosis. In the first classification the recurrent joint swellings are harbingers of typical rheumatoid arthritis. Idiopathic intermittent hydrarthrosis usually occurs in persons who have recurrent attacks without the development of rheumatoid disease later.

ETIOLOGY

The cause of this condition is apparently unknown, but it is worthy of note that all cases reported have been in the white race, that often the disease has occurred in persons with brucellosis (Sharpe[12] and Baker[1]) and that often it was of definite allergic origin (Lewin and Taub,[7] Berger,[2] Schlesinger,[10] Cook,[3] and Service[11]).

SYMPTOMS

Any joint may be involved, but the condition has a predilection for the knee, which was the joint affected in the cases to be reported. In most cases the onset is in the third or fourth decades of life. The disease may be bilateral, but in a majority of the cases reported a single joint was involved. Onset is usually abrupt with moderate pain, definite joint swelling, and limitation of motion. There are usually no signs of local inflammation, regional adenopathy, or lymphatic involvement. Even mild febrile reaction is rare. After a variable period of time, which is usually specific for each individual, the joint effusion disappears, then reappears in from seven to 21 days. Local disability, with limitation of motion and occasional pain on pressure, is usual. The total duration of the cycles of this disease may be up to 20 plus years. Laboratory findings are extremely variable. Secondary anemia and an accelerated sedimentation rate may be present.

DIFFERENTIAL DIAGNOSIS

Differential diagnosis is usually not too difficult, since complete examination of the patient can usually eliminate trauma, joint manifestations of systemic diseases (tuberculosis, gonorrhea, syphilis, or brucellosis), and reactions due to administration of antigens or vaccines. Radiographic examinations show a classical picture of severe hydrarthrosis without remarkable joint changes.

PATHOLOGY

Authorities do not agree as to the exact changes to be expected. Ghormley and Deacon[1] reported slight thickening of the lining layer of cells without perivascular thickening or fibrosis. Schlesinger[10] stated that the knees are usually involved because they have an especially large arterial circulation, extraordinarily well supplied with medullated nerve fibers. Porter[9] and others have observed changes consistent with those of early rheumatoid arthritis. Examination of aspirated synovial fluid will often show 100 cells per cu. mm., with more than 50 per cent of the cells being polymorphonuclear leukocytes. Culture and experimental animal inoculations have not consistently shown growth or infection in any cases reported.

TREATMENT

Salicylates have been used in full doses with no response. Older forms of therapy (quinine, arsenic, aspiration and lavage of the affected joints with the introduction of antiseptic solutions, desensitization, and peptone) have all been tried without success. Hench[6] reported improvement during pregnancy. Roentgen therapy has been used with success in one case. Radical synovectomy has been advocated by Key.[5] Because the periodicity of the disease has suggested a possible allergic basis, elimination diets, histaminase, ergotamine tartrate, and desensitization with suitable antigens have all been tried with indifferent success. The sheet-anchor of treatment appears to be rest of the affected part and elimination, if possible, of the causative factor.

CASE REPORTS

CASE 1: A 37-year-old white male, a store manager, had pain and swelling in the right knee in 1942 after being inducted into the Army where he did considerable marching. After marching he noticed pain in both legs. This pain was relieved by lying down, but he often noticed swelling of the right knee which did not disappear after rest. After his discharge from the Army in 1945, the right knee swelled more often, remained swollen for longer periods, and in the year preceding this report had not returned to normal size.

No history of familial disease was obtained.

The patient had had diphtheria at the age of eight, scarlet fever at six, appendectomy at 25, lobar pneumonia at 36. He denied asthma, hay fever, or urticaria by name and symptom except for hives, intermittently, in 1943, when he had swelling of the lips, face, and ears five or six times following ingestion of unusual foods. During 1947, he was treated energetically elsewhere with salicylates, penicillin, repeated aspirations of the right knee, therapeutic trials of colchicine, and a low-purine diet. Physical therapy, with diathermy to the knee, was given without benefit. The patient drinks three to four cups of coffee daily, and smokes one to one and a half packages of cigarettes a day. Alcohol is used only in extreme moderation.

The blood pressure was 102 mm. of mercury systolic and 60 mm. diastolic. Temperature, pulse and respirations were normal. Moderate mycotic infection (aspergillosis albicans) was present in both external auditory canals. There was moderate fibrinous pleurisy at the posterior base of the left lung, but ventilation was adequate. The heart was normal in size, shape, and rate. There were no palpable masses or tenderness in the abdomen. The genitals, including the prostate and seminal vesicles, were grossly normal. The right knee was swollen in all diameters (Figure 1). The patella was ballotable, and the joint contained 90 cc. of clear fluid on aspiration. Deep and superficial reflexes were normal.

Laboratory Findings: Results of Wassermann, brucellosis, skin, and agglutination tests showed no abnormalities. On repeated blood examinations, hemoglobin, erythrocytes, leukocytes and differential count were within normal limits. Except for rare appearance of granular casts, results of repeated urinalyses were normal. The blood sedimentation rate (Cutler) varied from 5 to 18 mm. in one hour, the rate depending on the activity of the hydrarthrosis.

Smears from the nose, throat, and prostate showed no unusual bacteria. Radiographs of the right knee were reported as showing no abnormalities in the bone or joints. The joint fluid was examined repeatedly by Gram stain, Wright stain, and Ziehl-Neelsen stain and culture. No organisms were found. The joint fluid usually contained many cells, of which 90 per cent were usually polymorphonuclear leukocytes. Skin tests with antigens showed significant reactions to tuna fish, milk, the common grasses, and severe reactions to sagebrush and mug wort. Desensitization was obtained by use of suitable antigens, but with no appreciable effect on the hydrarthrosis.

Clinical Course: Antihistaminics in large doses had no observable effect on the knee. Administration of the prescribed antigens gave slight symptomatic relief. An elastic bandage support was used regularly with moderate relief of pain.

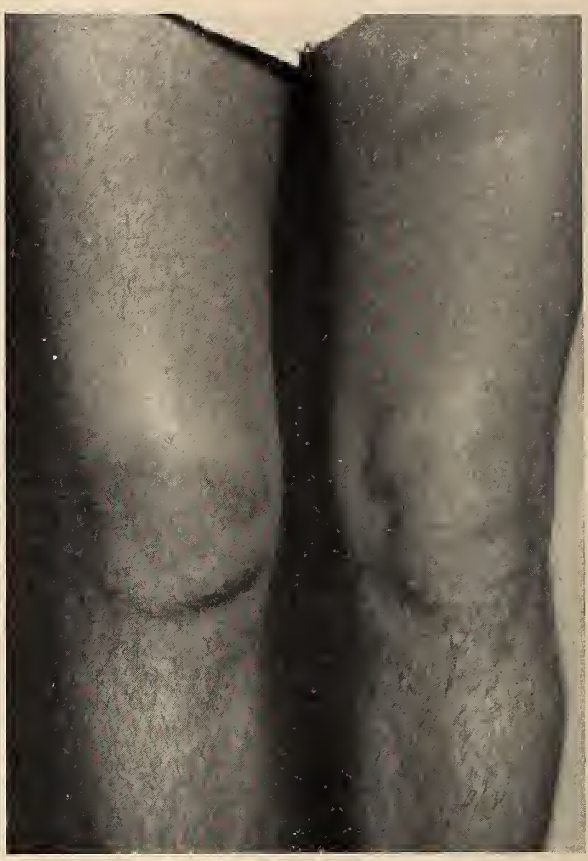

Figure 1.—Showing swelling in right knee.

Over the course of the disease, the knee swelling has gradually increased and has lasted longer with each attack. It is believed the disease may eventually progress to rheumatoid arthritis, but the low sedimentation rate and lack of response to salicylates casts doubt on this prognosis.

The most recent roentgenograms, taken in 1948, showed pronounced atrophic arthritis of the left hip and minimal chronic coccygitis, but the right knee remained unchanged.

Gold is being given regularly with pronounced relief of pain, which strongly suggests intermittent hydrarthrosis on a rheumatoid basis.

CASE 2: The patient, a white male 12 years of age, was first observed August 9, 1947, with a mild attack of acute anterior poliomyelitis. After six weeks in the hospital there was 50 per cent residual loss of function in the left lower leg below the knee but practically no atrophy in the affected muscles. On January 29, 1948, it was noticed that the left knee was greatly swollen and mildly tender. Aspiration yielded 80 cc. of clear fluid. Radiographs showed abnormal fullness of the prepatellar bursa. On February 9, 1948, 170 cc. of fluid was removed.

Besides the previously mentioned poliomyelitis, the patient had had the usual diseases of childhood without complications. Tonsillectomy had been done in October 1948. The mother and a maternal aunt have severe seasonal hay fever.

The temperature, pulse, and respirations were normal. Blood pressure was 102 mm. of mercury systolic and 70 mm. diastolic. Except for mild allergic rhinitis and simple obesity, the positive physical findings were limited to the left knee. It was symmetrically swollen, the patella was ballottable, and motion was restricted 25 per cent because of the swelling.

Examination of the blood showed hemoglobin content of 12.5 grams per 100 cc. Erythrocytes numbered 4,140,000 and leukocytes 7,400 with a normal differential. The urine was normal on repeated urinalyses. Results of tuberculin, Wassermann and brucellosis agglutination tests were negative. The sedimentation rate (Cutler) was 16 millimeters in one hour.

Skin testing showed reactions of significance to rye grass, orache, poverty weed, wool, silk, chili powder, mustard, tuna fish, and wax beans. A suitable antigen was administered without demonstrable benefit. Antihistaminics, salicylates, and splinting have been used regularly without apparent change in the periodicity of the swelling. During the time of observation up to the time of this report, the knee swelled at regular intervals of about three to four weeks and remained swollen from seven to 14 days. Never in that time did it return entirely to normal size. The tonsillectomy done elsewhere in October 1948, did not cause change in the hydrarthrosis. It is believed this case represents true idiopathic intermittent hydrarthrosis.

SUMMARY

Two cases of intermittent hydrarthrosis are reported. Treatment has been without much benefit in either case. It is believed that unreported cases of this joint phenomenon must occur more commonly than a brief review of American literature would indicate. Further work remains to be done to develop satisfactory treatment.

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* * *

MEDICAL PROGRESS:

Recent Advances in Rheumatoid Arthritis

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BOTH the lay public and the medical profession are beginning to realize the importance of the rheumatic diseases as social and economic problems. Research has received great impetus, and information is now being obtained which should lead to a greater understanding of this group of crippling diseases. Summarized herein are some of the contributions relating to rheumatoid arthritis which have appeared in the literature during the past two or three years.

CLINICAL DATA

Rheumatoid arthritis is not a disease solely of the joints, but a generalized systemic disease in which the predominant clinical manifestations are noted in the musculoskeletal system.[6] Patients are often sick for months, perhaps years, before typical joint changes develop. During this time prodromal constitutional symptoms such as weakness, fatigue, anorexia, weight loss, anemia, numbness and tingling of the hands and feet, and other vasomotor symptoms may be present.[9, 56] The onset may be marked by no special provocative incident, but according to Cecil[9] the majority of patients suffer some immediately preceding unusual strain to the physical equilibrium. A detailed study of possible precipitating factors in 100 soldiers with rheumatoid arthritis was made by Finney, Boland and Hench.[2] In 42 some factor which could have acted as a "trigger" appeared to be temporally related to the onset. An infectious process preceded the onset in 21, physical exposure in 12, trauma to a joint in five, physical fatigue in two, psychic trauma in one, and a surgical operation in one.

Textbooks should include descriptions of cases with atypical onsets and courses, as well as descriptions of the usual clinical pattern, because "atypical" cases occur frequently and offer the greatest problems in differential diagnosis. Examples of atypical onsets cited by Ropes and Bauer[55] included: Asymmetrical joint involvement, often monarthritis; sudden febrile onsets precipitated by acute infection and accompanied by skin rash and migratory joint involvement; bouts of arthritis precipitated by respiratory or other infections and not followed by permanent articular residues; febrile onsets resembling "palindromic syndrome"; onsets consisting of recurrent joint and muscle aching and stiffness with qualitative characteristics of fibrositis. Hench[24] described what might be called "episodic rheumatoid arthritis" characterized by transient articular reactions of one or more joints with symptoms affecting individual joints for only a short time, sometimes a very few hours, days, or weeks.

Atypical rheumatoid arthritis, with acute onset, may easily be confused with rheumatic fever on preliminary examination.[14] Differentiation may be possible only after the clinical course of the process has been followed. If the articular manifestations respond to full doses of salicylates, 7.76 to 9.72 gm. (120 to 150 gr.) per day, if joint symptoms subside within a reasonable period of time without leaving anatomic or physiologic residues, and especially if clinical and electrocardiographic cardiac abnormalities are detected, a diagnosis of rheumatic fever is made. If, however, the response to salicylates is inadequate, if chronic arthritis persists or progresses after subsidence of the acute phase, and if clinical and electrocardiographic evidences of heart disease are lacking, a diagnosis of rheumatoid arthritis is made. Engleman[19] studied the clinical similarities and dissimilarities between a group of soldiers with rheumatic fever and a group with onsets simulating rheumatic fever, but who later developed atypical rheumatoid arthritis. He did not consider evidence of carditis as an accurate criterion for differentiation because in adult rheumatic fever carditis is not detectable in a significant number of cases.

Although cardiac lesions, indistinguishable pathologically from those caused by rheumatic fever, are found in a high percentage (26 to 65 per cent) of patients with rheumatoid arthritis at necropsy, clinical signs of heart disease are rarely met during life. This striking discrepancy has led to detailed cardiovascular studies in patients with rheumatoid arthritis. In one investigation the results of auscultatory examination, roentgenograms of cardiac contour, and electrocardiograms were approximately the same in 147 patients with rheumatoid arthritis as in 100 normal controls.[54]

It is not sufficiently understood that rheumatoid arthritis can be precipitated by a gonorrheal infection just as it can be precipitated by tonsillitis, influenza, or some other acute infection. Also, mild, intermittent, or quiescent rheumatoid arthritis can be aggravated by acute genital gonorrhea. Such cases have sometimes been called "post-gonorrheal rheumatoid arthritis" but this condition does not represent chronic rheumatoid arthritis engrafted on, or evolving from, a subsiding acute gonorrheal arthritis; it represents simply rheumatoid arthritis precipitated or aggravated by acute genital (not articular) gonorrhea.[27] Proved gonorrheal arthritis among American soldiers in World War II was rather rare. Hench and Boland saw many more cases of rheumatoid arthritis precipitated or aggravated by gonorrhea than of gonorrheal arthritis. Most of the former cases were erroneously labeled gonorrheal arthritis, treated as such unsuccessfully by sulfonamides or penicillin or by fever therapy, and the patients transferred to the Army's rheumatism center with the notation that they had "gonorrheal arthritis resistant to penicillin and/or sulfonamides." In the experience of these investigators most cases of so-called "gonorrheal arthritis resistant to chemotherapy" have turned out to be cases of rheumatoid arthritis as shown by their subsequent course, therapeutic tests and, in some cases, articular biopsies.

Morrison, Short, Ludwig, and Schwab[42] did electromyelographic studies on 34 patients with rheumatoid arthritis. Whereas the muscles of normal individuals in a relaxed state show no electrical activity, patients with rheumatoid arthritis have an inconstant state of tension in muscles related to involved joints. Disordered muscle function preceded clinical evidence of articular disease in one patient. Spontaneous muscular activity is not peculiar to rheumatoid arthritis; it was found in two of four patients with arthritis due to specific infections, and in one with joint disability due to fixation. Similar patterns may be seen in poliomyelitis, infectious polyneuritis, and in nerve injuries. Blockage of the peripheral nerve was found to interrupt the path of origin of the motor discharges, but electromyelographic evidence of upper motor neuron involvement could not be demonstrated. Conclusions were that rheumatoid arthritis causes direct involvement of the neuromuscular system, and that spontaneous muscle activity may result from pathologic lesions in the lower motor neurons.

That hepatitis or biliary obstruction of sufficient severity to produce significant icterus may cause temporary partial or complete remission in patients with rheumatoid arthritis is now an accepted fact. Various attempts have been made to probe the mechanism by which such relief is obtained, but so far these have been futile. Intravenous injections of bile salts and of bilirubin have failed. Rennie and Fraser[50] inoculated ten volunteer rheumatoid arthritic patients with serum from patients who had acute infective hepatitis. Hepatitis developed in two of the patients, and both experienced dramatic subjective and objective improvement, the relief being greatest when icterus was maximum. Six months later one had relapsed partially and the other completely. The transmission of acute infective hepatitis should not be considered as a form of treatment for rheumatoid arthritis, but it could serve as a tool to alter the activity of the process, thereby allowing exploration of the mechanisms at play during remissions and exacerbations of the disease.

PATHOLOGY

The pathologic changes in rheumatoid arthritis are widespread throughout the body, involving a variety of organs and tissues. Inflammatory reactions are found in joints, capsular and pericapsular tissues, subcutaneous nodules, kidneys, heart, peripheral arteries, skeletal muscles, and peripheral nerves, and these are probably concomitant and coordinate lesions due to the same unknown cause.[59]

Joints. The primary lesion is in the synovial membrane, which becomes thickened by edema, hyperemia, and inflammatory cell infiltration. Varying degrees of effusion occur and hypertrophic villi appear in which there are collections of lymphoid cells. Contrary to the opinion of some observers, Flynn[66] believes that these collections of lymphocytes are not specific for rheumatoid arthritis but may be found in a number of other articular diseases. In severe cases a pannus forms which grows inward across the cartilage, gradually destroying it, and resulting in roughening and irregularity of the articular surface. Reparative changes follow the inflammatory stage and lead to ankylosis, which is first fibrous, but later may be calcific or bony.

Bones. Below the subchondral plate the marrow spaces are normally occupied by fibrofatty tissue. In severe rheumatoid arthritis granulation tissue occupies these spaces and its proliferation destroys the osseous trabeculae and the subchondral plate; hence the articular cartilage may be attacked on one side by pannus and on the other by granulation tissue in the marrow spaces.[66]

Subcutaneous Nodules. Microscopically the subcutaneous nodules of rheumatoid arthritis all have a similar structure consisting of connective tissue in which there are a number of granulomatous lesions. The granulomas are made up of a central area of necrosis surrounded by a zone of inflammatory cells (large monocytes) and then a zone of fibroblasts in palisade arrangement.[66]

Peripheral Nerves. Lesions in the peripheral nerves, similar to those described by Freund, Steiner, Leichtentritt and Price (1942) and others, were found in 26 of 31 cases studied at necropsy by Morrison, Short, Ludwig and Schwab.[42] Isolated and distinct inflammatory reactions, consisting of collections largely of lymphocytes and plasma cells with endothelial and occasional epithelioid cells or monocytes, were found widely scattered in nerve sheaths. Certain axonal reactions, or retrograde degenerations, were found in the corresponding nerve cell bodies (anterior horn cells or posterior ganglion cells). A few studies on ganglia of the sympathetic chain failed to exhibit conclusive findings. Nodular perineuritis may not be specific for rheumatoid arthritis, as similar lesions have been found in disseminated lupus and dermatomyositis.[66]

Central Nervous System. Morrison, Short, Ludwig, and Schwab[42] also made postmortem examinations of the central nervous system in 44 patients with rheumatoid arthritis and compared the findings with the necropsy findings in a control group of 50 with similar age distribution. No specific lesions were found in the brain or spinal cord in patients with rheumatoid arthritis, but alterations usually attributed to aging were more pronounced than they were in the controls.

Muscles. Steiner, Freund, Leichtentritt, and Maun[59] in 1946 extended their earlier observations of nodular polymyositis (microscopic focal accumulations of lymphocytes and plasma cells, occasional mast cell, and rare polymorphonuclear or eosinophilic cell) in rheumatoid arthritis. These compact inflammatory lesions were found in nine additional cases of rheumatoid arthritis. In those cases the lesions were widely disseminated and were found in muscle biopsy specimens taken at randon. These observers and others[18] considered the lesions specific for rheumatoid arthritis, as similar lesions were not found in 196 control observations including examinations of muscle from patients with various nervous and muscle diseases. Clawson, Noble, and Lufkin,[11] however, have expressed doubt whether the muscle lesions can be considered as specific on a morphologic basis; whereas the nodules were found more frequently in patients with rheumatoid arthritis, they were found also in 118 of 450 routine autopsy cases (36.2 per cent) studied by them.

ETIOLOGY AND PATHOGENESIS

Truthfully and simply stated, the cause of rheumatoid arthritis is not known. Of the various hypotheses offered heretofore, the theory of infectious origin has had more indirect evidence for support than have others—but that theory has been insecure and has lacked proof. The presence of bacteria of any species has not been consistently demonstrated with rheumatoid arthritis.[21] Inflammation does not necessarily signify infection, as the signs and symptoms in gout or fresh burns bear witness. A rapid erythrocyte sedimentation rate does not necessarily indicate an infectious process, as increased rates are found in a number of established non-infectious diseases. Positive agglutinins, antistreptolysins, precipitins, and skin tests with streptococci antigens suggest only that the patient has been infected with streptococci, not that the arthritis is due to these organisms.

Recently Hench, Kendall, Slocumb and Polley[28] made a most important step toward solving the pathogenesis of rheumatoid arthritis. They were unable to harmonize the microbic theory with the phenomena of relief of the disease by pregnancy and jaundice. Further, they reasoned that certain procedures (general anesthesia, surgical operation, etc.) and states (pregnancy) which induced temporary remissions in rheumatoid arthritis were capable also of stimulating the adrenal cortices. Subsequently they discovered that a hormone of the adrenal cortex, cortisone (17-hydroxy-11-dehydrocorticosterone: Compound E), as well as pituitary adrenocorticotropic hormone (A.C.T.H.) exerted rapid and dramatic ameliorating effects when administered to patients with rheumatoid arthritis. Cortisone, or its synthetic acetate, or synthetic Compound E acetate (Cortisone), was administered intramuscularly in large doses (optimal doses of 100 mg. daily after an initial dose of 300 mg.) to 14 patients with severe or moderately severe rheumatoid arthritis. In each case pronounced improvement of the clinical features and sedimentation rates began to occur within a few days (usually two to four). When administration of the hormone was discontinued, relapse usually followed promptly. Essentially similar results, accompanied by various biochemical effects, were obtained from the administration of A.C.T.H. to two patients. The full importance of this discovery cannot yet be weighed, but its influence on future research will be great—perhaps it will serve as the key which will open the door to understanding of the pathogenesis of rheumatoid arthritis and related diseases.

TREATMENT

Management of Foci. A conservative attitude has become universal: Only definite foci should be eradicated, and then only with the view of bettering the general health, not for the purpose of directly curing the disease.[40, 49, 66] According to Freyberg,[21] two considerations should govern the management of foci of infection: "(1) Just as a patient without rheumatic disease should have abscessed teeth or infected tonsils removed, so should the patient with rheumatoid arthritis. (2) By removal of such infected tissues, the patient's general health might be improved and thereby his ability to combat the arthritis might be indirectly facilitated."

Vaccines. While most observers have abandoned the use of vaccines, a few adherents of vaccine therapy still exist. Key[34] makes the following pertinent query: Why should one expect a vaccine made of one or another organism to cure a disease of unknown etiology when there are numerous diseases of known etiology in none of which has any vaccine been found to be of benefit?

Foreign Proteins. Cecil[9] believes that febrile reactions produced by intravenous injections of triple typhoid vaccine have a definite but limited place in treatment. It is not recommended for chronic, well-established cases, but in initial stages, especially in subacute febrile patients, it will occasionally bring about rapid and complete cessation of symptoms.

Diet. There is no specific diet. Because most patients with rheumatoid arthritis are undernourished and underweight, every effort must be made to maintain nutrition at its highest point by a well balanced diet.[31, 46, 61, 62] To achieve this, a diet high in calories, high in vitamins, rich in fruits and vegetables[9] and with a normal ratio between protein, carbohydrate and fat is indicated.[39]

Vitamins. Supplementary vitamin therapy apparently is indicated because absorption of dietary vitamins is faulty in debilitated individuals.[55] But there is no specific vitamin for rheumatoid arthritis and vitamins at best play only a supportive role, their effect being tonic and in no way specific.[49, 63] Neither the symptoms nor the course of rheumatoid arthritis is altered directly by the administration of Vitamin A, Vitamin B complex (thiamine hydrochloride, niacin, riboflavin), Vitamins C, E, or K.[63]

Vitamin D. A few physicians still consider the use of concentrated doses of Vitamin D of some value; however, the majority of experienced rheumatologists not only regard it as essentially useless,[25, 46] but as potentially dangerous.[4, 5, 29] Traeger[63] concludes that while some cases show definite slow subjective improvement, objective change is infrequent. Rawls,[49] after ten years' experience with Vitamin D, believes that "it is of little or no value regardless of the preparation used."

Transfusions; Hematonics. The hypochromic anemia associated with rheumatoid arthritis frequently does not respond adequately to iron salts. Often one or more blood transfusions will correct the anemia and start the patient on the road to improvement.[9, 31, 61] Stephens, Borden, Holbrook and Hill[60] found that the blood picture was improved in all of 20 patients with rheumatoid arthritis treated with folic acid for a period of three months. Usual dosage was 20 mg. daily, but larger doses up to 100 mg. daily were given if initial response was not adequate. Improvement consisted of increases in mean corpuscular volume, packed red cell volume, hemoglobin, and in color index, and improvement in the structure of the erythrocytes; but a comparable rise in the total erythrocyte or leukocyte counts did not occur.

Antibiotics: Penicillin, Streptomycin. Unfortunately these have proved ineffective.[6, 23, 31]

Antireticular Cytotoxic Serum (A.C.S.). Further experience with this serum substantiates Bach's conclusions (1945) that it is probably worthless in the treatment of rheumatoid arthritis.[46, 49, 52]

Neostigmine (Prostigmine): Physostigmine. Unsatisfactory results were obtained by Balboni, Hollander and Kydd[2] with both subcutaneous and oral prostigmine given to tolerance to 23 patients. In only two cases was there any appreciable decrease in muscle spasm, and in one of these the effect was inconsistent. Unpleasant and often alarming reactions occurred in 14 of the 23 cases. The conclusion was: "A potent drug such as prostigmine should yield much more definite benefit than we have observed in order to justify its continued use in rheumatoid arthritis." Rawls and associates used prostigmine in over 1,000 cases, and the number in which improvement was shown was "relatively small."[49]

Transfusions of Blood from Pregnant Women. Barsi[3] reported a "new treatment" suggested by the observation (made by Hench in 1938 and later by others) that the majority of females with rheumatoid arthritis have a temporary remission during pregnancy. He gave "several" transfusions of 300 cc. citrated blood from pregnant women to 28 patients with rheumatoid arthritis. Of these, 64 per cent recovered or improved and 36 per cent remained unchanged. Unfortunately this report has resulted in encouraging (and probably unwarranted) lay publicity in the press and on the radio. Barsi's statistical results are the same as those reported for many other forms of therapy—"the inevitable 60 to 70 per cent improved." Important details are missing in the six case abstracts presented and the criteria of improvement are not stated. Lacking is a controlled series treated by series of transfusions of blood from non-pregnant persons.

Curare. Schlesinger[66] believes that injections of curare in oil and beeswax are a useful adjunct in the treatment of patients with severe muscle spasm and reflex shortening of muscles. Curare relaxes the flexor protective mechanisms and allows better response to physiotherapy. In some cases of rheumatoid arthritis in which electrical activity is shown by electromyelographic studies, such activity subsides after administration of curare.

Analgesics. For relief of pain, no drug stands up so well as acetylsalicylic acid[9, 39] and as far as can be determined it does no harm.[66] There is no justification for giving salicylates intravenously.[16] Because of their habit liabilities, opiates and Demerol® are condemned.

Chrysotherapy. Despite long experience with gold compounds, their exact value in the treatment of rheumatoid arthritis has not been determined. Although diverse opinions exist, many experienced, careful rheumatologists maintain their conviction that chrysotherapy is the best single remedy now available for rheumatoid arthritis[9, 25] or the only remedy which will consistently change the course of the disease in a high percentage of cases.[66] According to Cecil these are not sensational statements, considering how disappointing most other remedies are. Hostility toward gold compounds has been occasioned by the relatively frequent toxic reactions which attend their use. However, the vicious nature of the disease attacked may justify the risks—big game cannot be fought successfully with small caliber weapons.[26]

1. *Indications.* Rheumatoid arthritis appears to be the only rheumatic disease in which the use of gold salts is justified.[15, 58] Not all patients should receive chrysotherapy; the physician should be convinced that the disease is active and progressive. Many believe that a reasonable trial on conservative measures should be given first. Some contend that gold salt therapy should be "a last resort," should be withheld until all other measures have failed. Others urge that chrysotherapy be instituted as early as possible, preferably within the first two years of the disease, rather than late after irreversible changes have taken place.

2. *Contraindications.* The generally accepted contraindications to chrysotherapy are: Severe diabetes mellitus, disseminated lupus erythematosus, nephritis, ulcerative colitis, hepatic damage, blood dyscrasias and hemorrhagic tendencies, pregnancy, and history of previous exfoliative dermatitis.[6, 12] Neither vascular hypertension nor chronic valvular heart disease is a contraindication.[10]

3. *Preparations.* Soluble compounds include gold thioglucose (Solganal-B Oleosum®), gold sodium thiomalate (Myochrysine®) and gold sodium thiosulfate (Sanocrysin®). Insoluble compounds include gold calcium thiomalate and gold thioglycolanilide (Lauron®).[6] Apparently gold must be combined with a sulfhydryl group to be effective,[66] but the gold content is believed to determine therapeutic activity.[58] The water-soluble compounds are more rap-

idly absorbed and appear to have some therapeutic advantages.[16, 58] The insoluble salt, gold calcium thiomalate, was considered slightly less toxic than the soluble salt, gold sodium thiomalate (Kersley).[32] Robinson[51] believes gold thioglycolanilide to be equally efficacious therapeutically and definitely less toxic than soluble salts, but others found its toxicity to be the same.[46] Colloidal gold preparations, such as colloidal gold sulfide (Aurol-Sulfide®), are rapidly phagocytized in reticuloendothelial cells, especially in the liver and spleen; hence, although intoxication is prevented, therapeutic effectiveness is minimal.[13, 16, 58]

4. *Dosage and Methods of Administration.* Formerly large individual doses (100 to 500 mg. of the salt) were given, but these were found to be dangerous because of the frequency and severity of the toxic reactions encountered. The trend recently has been toward smaller doses, not to exceed 50 mg. of a soluble gold compound having a metallic gold content of 50 per cent (25 mg. of metallic gold). The basic schedule now advocated by most authorities[8, 9, 25, 46, 58, 61] is as follows: First dose, 10 mg. intramuscularly; second dose, 25 mg.; third and succeeding doses, 50 mg. An interval of one week is usually allowed between doses. Some prefer to give individual doses of 25 mg. once a week. Whereas an arbitrary maximum dose may be adhered to, there should be no fixed amount. Dosage must be regulated somewhat according to the patient's reactions and the development of toxic symptoms.[32] In mild cases of the disease, and in those in which the patient is suspected of being susceptible to toxic reaction, individual doses of 25 mg. probably should not be exceeded.

Most observers agree that the total amount administered in a course should be between 750 and 1,500 mg. of a soluble salt (375 to 750 mg. of metallic gold). But according to Cecil[10] there should be no fixed amount because some patients improve rapidly and need comparatively small amounts, while others need larger doses. Ragan and Tyson[48] contend that if no response is obtained after 2,000 mg. has been given, further use of gold is futile.

Formerly the popular treatment schedule was to give one, two, or more courses of gold compounds with rest intervals of six weeks to six months between courses. The modern trend is to abandon multiple courses of treatment and to give a single course, followed thereafter by "maintenance doses" consisting of 50 mg. every two to four weeks for an indefinite period.[8, 10, 46, 58, 62, 66] Maintenance doses tend to reduce the frequency of relapses. If the multiple course schedule is adhered to, and if relapse occurs, it is important to resume chrysotherapy in small doses (5 or 10 mg. of the salt) in order to avoid toxic reactions.[10]

5. *Mode of Action.* The mode of action of gold compounds remains unknown. Short, Beckman and Bauer[58] reviewed the various hypothetical explanations: The serum of patients receiving gold salts has increased bacteriostatic powers against certain hemolytic streptococci, but since no bacterial cause for rheumatoid arthritis has been found, this observation does not furnish an explanation. That deposition of gold in reticuloendothelial cells might stimulate defense mechanisms of the body has been postulated. It has been suggested that the effect of gold may be mediated by the production of liver damage, but demonstrable toxic effects on this organ have been rare. No evidence has been presented that gold has an analgesic effect. Attempts have been made to find a common denominator for remissions associated with jaundice, pregnancy, and gold, but so far these have been unrewarding.

6. *Results.* Ragan and Tyson[48] studied the immediate response and the long-term results after three to four years in 142 patients treated with gold compounds (72 received gold sodium thiomalate; 19, gold calcium thiomalate; and 51, gold thioglucose). The immediate response after a single course of 0.5 gm. or more of the compound was as follows: Pronounced subjective improvement in 55 per cent; decided objective improvement in 50 per cent; no improvement in 11 per cent; definite but "not startling" improvement in the remainder. Thirteen per cent remained asymptomatic for 45 to 78 months after a single course, and 75 per cent had relapse. Seventy-seven of those who had relapse received a second course of treatment and 80 per cent of these again obtained improvement. In general terms, the results were summarized as follows: Of patients receiving full treatment with one or two courses, 10 to 20 per cent show no improvement, and 40 to 60 per cent show striking improvement; but 80 to 90 per cent will relapse within five years, and of these, 80 per cent will again be benefited by more gold.[46]

Less favorable results with the "course" method were reported by others. Short, Beckman, and Bauer[58] made a critical study of results in 35 patients treated with a single course of gold compounds and compared them with the results obtained in a group of 274 patients receiving only general and orthopedic treatment. Of the 35 patients receiving gold, 21 (60 per cent) obtained immediate improvement, but 13 later had relapse, giving a total net improvement in only eight cases (23 per cent). Better net results were obtained with general measures alone, 52.9 per cent of the patients showing improvement. The results of Browning, Rice, Lee and Baker[8] were similar.

Using the currently popular "maintenance dose" plan of therapy, Waine, Baker, and Mettier[65] compared the results in 58 patients with those in 62 control patients receiving general supportive treatment only. The patients obtaining gold compounds (gold sodium thiosulfate or gold sodium thioglucose) received average total doses amounting to 3,200 mg. (1,600 mg. in terms of the metal). Results were as follows: Arrested, 20.7 per cent; decidedly improved, 36.2 per cent; improved, 24.1 per cent; unimproved, 11 per cent. In the control group, the results were as follows: Arrested, 9.7 per cent; decidedly improved, 19.4 per cent; improved, 27.4 per cent; unimproved, 43.5 per cent. The conclusion drawn was: "Soluble gold salts are therapeutically effective in peripheral rheumatoid arthritis, since the rate of significant improvement is approximately twice as high in the gold-treated series as in the controls."

7. *Toxic Reactions.* Most observers agree that about one patient in four experiences some untoward effect, for the most part of minor order. Ragan and Tyson[48] noted significant toxic reaction (pruritus, rash, stomatitis or blood dyscrasia lasting more than a month) in 39 per cent of patients receiving Myochrysine,® in 31 per cent of those receiving Solganal-B Oleosum,® and in 21 per cent of those receiving gold calcium thiomalate. Minor reactions, including skin rash, mouth sores, and transient albuminuria. develop in about 25 per cent of cases.[10] Serious reactions include exfoliative dermatitis, hepatitis, ulcerative enterocolitis. thrombocytopenic purpura, agranulocytosis, and encephalitis. Fortunately these are not common.

8. *Prevention and Treatment of Toxic Reactions.* Whereas there are no sure ways of preventing toxic reactions, small doses and constant vigilance permit the carrying out of gold therapy with a fair degree of safety. All allergic patients should be watched with particular care.[10] Mild albuminuria is a sign for caution, not for discontinuance of therapy,[16, 32] but with signs of active renal irritation (albumin of 2+ or more, red cells or casts in the urine, and increased blood urea nitrogen), gold should be discontinued permanently.[10] Eosinophilia may be a sign of poisoning,[55] and basophilic stippling of erythrocytes is a frequent finding.[43] There is no sure way to detect impending dermatitis; eosinophilia does not necessarily precede it or indicate it when present,[25] but pruritus often precedes it and is a warning signal. Increased menstrual flow may foreshadow a lowered platelet count and an impending purpura hemorrhagica.[49]

British Anti-Lewisite (BAL) (2, 3, Dimercaptopropanol) has proved to be an effective weapon for the control of some of the serious toxic reactions to gold,[12, 17, 49] as it has for other heavy metal poisonings. Ragan and Boots[47] used the drug in five patients with severe gold dermatitis and in four the pruritus and rash cleared up promptly; in one case, in which dermatitis was of long standing (three months' duration), the treatment was ineffective. Spectacular recovery with the use of BAL in one case of thrombopenic purpura and in one of agranulocytosis was reported.[37] Penicillin, acting as a temporary substitute for the phagocytic activity of granulocytes while granulopoiesis is being resumed, is an important adjuvant in the treatment of agranulocytosis.[7]

Fever Therapy. Artificial hyperpyrexia with temperature of 104° F. to 106° F. for several hours produced by the Kettering hypertherm or by electromagnetic induction, has been practically discarded.[6]. Such a procedure is exhausting, sometimes harmful, and relief is at the best temporary.

Roentgen Therapy. Roentgen therapy in peripheral rheumatoid arthritis has been disappointing to some observers[19] but in the experience of others it has frequently been successful in relieving local symptoms of pain and soreness,[33, 45, 62] especially when applied to one or two large joints that remain swollen and boggy. Because rheumatoid arthritis is a constitutional disease, roentgen therapy at best can be considered as a local measure and not as a complete form of therapy.[22] Kuhns and Morrison[35] treated 154 patients who had peripheral rheumatoid arthritis (without spondylitis). Improvement of the joints treated was pronounced in 22.7 per cent, moderate in 39.9 per cent, and slight in 16.8 per cent; no change was noted in the remaining 20.8 per cent. Improvement consisted of diminution of pain and swelling, local analgesia, and decrease in muscle spasm followed by increased range of active, painless motion.

Rest and Motion. The value of rest, both mental and physical, is universally recognized. But rest should not mean the total immobilization or "mummification" of the patient.[1] Complete bed rest is rarely indicated except during acute febrile stages, during severe exacerbation of joint manifestations, or during the initial phases of treatment. Overresting encourages muscle atrophy, contractures, and ankylosis:[44] some patients, overconscientious about rest and fearful of pain, may rest unduly and learn that "the price of too much comfort is crippledom."[41] When prolonged bed rest is needed, adequate posture should be maintained and bed exercises instituted.[36] The bed should be firm and nonsagging, pillows under the knees or shoulders should not be used, and indicated support with sandbags or foot board must be provided. Bed calisthenics, with breathing, muscle-setting, and trunk-stretching exercises, should be carried out several times daily, these being carefully timed to alternate with periods of rest. All joints, even though acutely inflamed, should be carried gently through the maximal range of motion once or more daily.[44]

Physical Therapy. Most observers consider physical therapy as a necessary adjunct to successful management. Home regimens consisting of simple physical measures often suffice.[30, 55, 64] Local heating of large joints can be carried out with a simple home-made luminous baker, clamp lamp, wet packs, or applications of paraffin wax if electricity is not available; contrast baths, paraffin dips or home whirlpool baths are useful for hands or feet; thermal tub baths each morning are helpful; massage can usually be provided if a member of the patient's family is instructed in a few simple strokes; active, passive, and resistive exercises can be carried out adequately at home.[30] By testing skin temperatures with various types of heat applications, Martin, Roth, Elkins and Krusen[38] found that the degree and duration of vasodilatation was the same whether the heat was moist or dry. General body heating (body baker, fever cabinet. Hubbard tank) resulted in more prolonged elevations of skin temperatures (feet and hands) than did local application of heat. In general, after the local application of heat to a part, the cutaneous temperature returns to basal levels in about one-half to one-third less time than after the generalized application of heat.

Therapeutic exercise is best performed following massage and during the continued period of hyperemia.[30] Exercises have as their objects: (1) to preserve the function of the joint by preventing ankylosis; (2) to maintain the tone of muscles; (3) to prevent and overcome contractures and deformities.[9] They should be graduated from passive to active assistive and finally to active voluntary movements, depending on the degree of joint inflammation.

Prognosis. The literature has contained no report of a true control group receiving no treatment and followed for a period of sufficient duration to allow the natural course of rheumatoid arthritis to be appraised. However, Short and Bauer[57] studied a group of 250 patients treated only by general supportive measures for periods which averaged 9.6 years. The following results were reported: Improved, 53 per cent; stationary, 13 per cent; worse, 34 per cent. Fifteen per cent were in remission at the time of the last examination and 9.2 per cent could be considered as "five-year cures."

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EDITORIALS

Whose Monopoly?

Many Americans and not a few newspapers were considerably disturbed last month when the American Medical Association announced that its own organization and 15 state or county medical societies were currently under investigation by the Department of Justice for "alleged violations of the federal anti-trust laws." The A.M.A. stated in its news release that these investigations had been started within a few days of each other and that they were considered to be component parts of a campaign of harrassment against medical organizations which had opposed top level government plans to start a system of compulsory health insurance in this country.

We mention newspapers above because quite a few of these representatives of public opinion have come out editorially in opposition to this use of governmental authority in investigating the private records and files of non-profit organizations which have consistently and traditionally operated for the public benefit. The editorial comment has been concentrated against this use of governmental power and has employed such terms as "police state methods," "gestapo," and "power politics."

Since the original A.M.A. statement on this subject, the California Medical Association and one of its component county medical societies have fallen under the same form of inquisition. On top of that, another state medical association and four other county medical societies have been subjected to similar investigation. The list of medical organizations included in the government probe seems to be growing each week and it is noteworthy that the list includes principally those societies which have been outspoken in opposition to the establishment of a system of government-controlled compulsory health insurance.

The original A.M.A. statement noted, and the additional investigations confirm, that this type of witch-hunting is not just a routine pursuit of governmental obligations. There seems to be something more behind all this and we are forced to wonder if some federal official or some former federal official might not be involved. Several names come to mind and we could easily imagine that some individuals who have enjoyed the fruits of governmental bounty as trusted officials might have added their names to the infamous list of "five percenters" who have achieved newspaper headlines in recent weeks.

We do not seek to list any individual's name in a group that has been thoroughly smoked out by public disclosure, but some person might well be selling his services on the basis of his connections in federal government circles. The name is not important, only the fact.

Meanwhile, it is worth noting that the very same government which is shouting "monopoly" at 23 medical organizations is seeking to establish a system of compulsory health insurance under which every American would pay taxes and would receive service under terms to be dictated by a governmental agency. Surely, such a system would be a monopoly in the strictest sense of the word.

Sometimes we wonder if the use of the word "monopoly" is actually meant to imply only business or professional organizations or if it should not also include federal governmental agencies which have the power of law or regulation to impose their own wishes, perhaps political, on the people of this country.

Letters to the Editor . . .

Undesirable Use of Magnesium Intravenously in Parathion Poisoning

In the September issue of CALIFORNIA MEDICINE (71:250, 1949), the suggested treatment of parathion poisoning includes use of magnesium sulfate, 10 to 20 cc. of 10 per cent solution intravenously, to counteract muscular excitability due to overstimulation of the receptive substance (or myoneural junction) resulting from the parathion. I should like to warn against the free and general use as antidote of magnesium sulfate intravenously by inexperienced physicians, because if the atropine, which is directed to be used conjointly, does not arrest the muscular excitability, the magnesium would probably have to be used in doses which might cause respiratory or cardiac failure or both. Pharmacologically it is well known that magnesium depression of the respiration is accompanied by cardiac depression or failure; in fact, use of this ion intravenously is a favorite painless method of dispatching experimental animals. It is also well known that unless calcium chloride is injected intravenously to combat depression, death occurs promptly. At death, evidences of curarization of the skeletal and diaphragmatic muscles are usually lacking, thus indicating the unreliability of magnesium for depression of the receptive substance in mammals.

There is also chemical evidence to indicate that magnesium is useless or unreliable, or even dangerous, for systemic use in man. Apparently, elimination keeps pace with absorption of small or medium doses which would make it practically useless. The blood concentration of magnesium for a desired grade of depression is seemingly not easy to maintain unless the dosage is relatively high. This was indicated by the experimental results of Neuwirth and Wallace 20 years ago (J. Pharm. Exp. Therap., 35:171, 1929). These authors showed that the normal serum concentration of 1.0 to 2.0 mg. per cent could be increased to 3.0 mg. per cent without depression after giving rather large doses intramuscularly (0.25 gm. per kg., equivalent to 7.5 gm. for a 70 kg. adult), but it was necessary to raise it to 5.0 mg. per cent to give evidences of depression, which became severe to grave at 20.0 to 23.0 mg. per cent. However, commonly used analgesic doses in human individuals produced less than 4.0 mg. per cent. These blood levels and the various effects mentioned indicate that the margin of safety for magnesium systemically is too narrow to warrant its use in man, whether its salts are used intravenously or intramuscularly. I may add that whenever the systemic use of magnesium is contemplated, calcium chloride solution (500 cc. or so of 0.02 per cent) should be ready at hand for intravenous injection, as this is a specific antidote against both respiratory and cardiac depression of the magnesium ion.

If the twitchings or convulsions of parathion are serious enough to require checking, probably better and safer than magnesium intravenously would be the use of d-tubocurarine chloride (N.N.R.) intramuscularly, or intravenously for rapid effect. The initial dose of this drug may be 0.15 mg. per kg. body, or somewhat less (total about 6.0 to 9.0 mg. as against a calculated total of 10.5 mg. for a 70 kg. adult), and an additional total of about 3.0 mg. may be given in about five minutes and repeated if necessary. Of course, ready at hand must be means for giving artificial respiration or oxygen inhalation and injecting physostigmine or neostigmine methyl sulfate to combat sudden respiratory reduction or arrest. Fortunately, d-tubocurarine usually paralyzes the receptive substance of the peripheral skeletal muscles first and of the diaphragm last, but it does not depress the respiratory center or heart directly. Thus, prompt combating of any anoxia usually maintains the functional integrity of these two organs. The patient should be hospitalized for this treatment, as he probably would be anyway when poisoned severely. Minor excitation could probably be better checked with soluble pentobarbital or phenobarbital injected intramuscularly.

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Stanford University School of Medicine

Neomycin

One of the handicaps to the use of streptomycin in the treatment of tuberculosis arises from the development of streptomycin-resistant strains of the tubercle bacillus. In hope of finding an antibiotic effective against such streptomycin-resistant strains, Waksman[1] and his associates of Rutgers University tested filtrates from a thousand cultures of soil bacteria. *In vitro* tests showed that several of these filtrates were effective bacteriostatic agents. Most of them, however, were too toxic or unstable to be of therapeutic interest. Recently, however, a non-toxic stable filtrate has been found, from which a new antibiotic "Neomycin" has been isolated.

Neomycin can be separated from a fluid culture by routine methods of adsorption and elution, but has not yet been obtained in crystalline form. It is thermostable, soluble in water, but insoluble in organic solvents. It is equal or superior to streptomycin and streptothricin in its *in vitro* bacteriostatic action against a wide range of Gram-positive and Gram-negative bacteria. Against laboratory strains of Staphylococcus aureus, for example, it is ten times more effective than streptomycin, and of a three times higher bacteriostatic titer than streptothricin. It is particularly active against both streptomycin-sensitive and streptomycin-resistant Mycobacteria, including the tubercle bacillus. In a typical test it inhibited the growth of a resistant strain of M. tuberculosis in dilutions as high as 1:150,000, toward which strain streptomycin was wholly inactive. Preliminary tests with various bacteria suggest that susceptible microorganisms do not acquire a neomycin-resistance on prolonged growth in the presence of small amounts of the new antibiotic.

Given in therapeutic doses to infected mice or chick embryos, neomycin is non-toxic. In parallel tests with groups of mice infected with streptomycin-susceptible Staphylococcus aureus, its therapeutic value is approximately that of streptomycin, both agents effecting a 100 per cent cure. Given to groups of mice infected with streptomycin-resistant Salmonella schottmulleri, 100 units of neomycin has a 100 per cent curative effect, while 5,000 units of streptomycin are required to effect a 20 per cent survival of the infected mice. Therapeutic tests with animals infected with M. tuberculosis, however, have not yet been reported.

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Multiplication of Influenza Virus in Dead Chick Embryos

In 1931 it was demonstrated by Bucciante[1] that chick embryos maintained at 20° C. may contain living cells for as long as 31 days after cessation of the heart beat, and for at least 47 days if maintained at a lower temperature.

It occurred to Rabinowitz[4] and associates of the department of bacteriology, Hebrew University, that such dead embryos might be used for the cultivation of Rickettsia and related organisms. In preliminary experiments eggs containing three-day-old embryos were killed by chilling to 4° C. for 24 hours, stored four to seven days at room temperature and then incubated for from 10 to 16 days at 37° C. At the end of this time the eggs contained embryos which had not developed beyond the third day stage, yet living epithelial cells grew out when fragments of the embryos or of their membranes were cultivated in plasma clots.

The Hebrew University investigators then inoculated Rickettsia prowazeki into the yolk sacs of such dead embryos and incubated them at 37° C. for seven to 14 days. At the end of this period the Rickettsiae count per cell in the dead embryos was usually greater than that in control living embryos. They found that inocula too small to yield positive smears after seven days' incubation of living embryos yielded positive smears after 14 days' incubation of dead embryos.

The feasibility of using dead embryos in field work with influenza virus was afterwards tested by Lahelle and Horsfall[3] of the Rockefeller Institute. Eggs inoculated for five days were killed either by exposure to room temperature for three days, or to 4° C. for 20 hours. The killed embryos were then inoculated into the allantoic sac with 0.2 cc. of a 10^3 to 10^6 dilution of infected allantoic fluid. The inoculated eggs were stored for seven to 10 days at room temperature, then incubated at 35° C. for from two to 10 days. Maximum development of the virus was noted by the end of six to eight days. At this time the extra-embryonic fluid often showed a hemagglutination titer as high as 1:2,000, as measured on the Hirst[2] scale, and an infectivity titer of at least 10^{-5}. Specific hemagglutination-inhibition tests identified the virus.

In control experiments five-day embryos were frozen at —30° C., for 20 hours. After thawing, the eggs were inoculated with twice the usual infectious dose of influenza virus, and incubated at 35° C. for prolonged periods of time. No evidence of viral multiplication was demonstrated in these embryos. Influenza virus apparently cannot multiply in or upon dead epithelial cells.

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NOTICES AND REPORTS

Council Meeting Minutes

Tentative Draft: Minutes of the 365th Meeting of the Council of the California Medical Association at the Biltmore Hotel, Los Angeles, Saturday, September 24, 1949.

The meeting was called to order by Vice-Chairman MacLean, who yielded the chair to Chairman Shipman upon the latter's arrival, in Conference Room Number 5 of the Biltmore Hotel, Los Angeles, at 9:30 a.m., Saturday, September 24, 1949.

Roll Call:

Present were President Kneeshaw, President-Elect Cass, Speaker Alesen, Councilors Ball, Crane, Henderson, Anderson, Ray, Montgomery, Lum, Pollock, Green, Shipman, West, MacLean, Frees and Thompson, and Secretary Garland. Absent: Vice-Speaker Charnock, Councilor Bailey and Editor Wilbur.

A quorum present and acting.

Present by invitation were John Hunton, executive secretary; Howard Hassard, legal counsel; William P. Wheeler, assistant executive secretary; Ben H. Read, executive secretary of the Public Health League of California; Ed Clancy, field secretary, and county society executive secretaries Waterson of Alameda, Cochems of Los Angeles, Venables of Kern, Tobitt of Orange and Young of San Diego.

Present by invitation for periods during the meeting were Doctors Henry Gardner and William Gardenier and Mr. William M. Bowman of California Physicians' Service; Dr. E. L. Bruck, former Councilor; Dr. Eugene F. Hoffman, A.M.A. Delegate; Dr. Wilton L. Halverson, state director of public health; Doctors Stanton Farnsworth and Glenn A. Westphal of the Association of Local Health Officers; Dr. Notkin and Mr. Hart of the Bureau of Vocational Rehabilitation of the State Department of Education; Dr. Gerald G. Gill of the Western Orthopedic Association; and Dr. Lester I. Newman and Messrs. Gordon Snow, John Knox and B. F. Meekins, representing compensation insurance underwriters.

1. *Minutes for Approval:*

(a) Minutes of the 364th meeting of the Council, held July 9, 1949, were approved as drafted and circulated.

(b) Minutes of the 215th meeting of the Executive Committee, held August 18, 1949, were approved as amended; the amendment was in the report of a special committee to consider eligibility requirements for election to Affiliate Membership, the amendment holding that members who had been engaged in private practice should not be eligible for election to Affiliate Membership but should be eligible for a reduction of dues on proof of illness or full-time postgraduate study.

2. *Membership:*

(a) A report of membership as of September 22, 1949, was received and ordered filed.

(b) On motion duly made and seconded, 46 members whose 1949 dues had been received since the last Council meeting were voted reinstatement as active members.

(c) On motion duly made and seconded, one member whose 1948 and 1949 dues had been received since the last Council meeting was voted reinstatement as an active member.

(d) On motion duly made and seconded in each instance, three members were elected to Retired Membership. These were:

David Hadden, Alameda County.
William R. McGrew, Alameda County.
Ernest G. Motley, Orange County.

(e) On motion duly made and seconded in each instance, four applicants were elected to Associate Membership. These were:

Myron W. Husband, Humboldt County.
A. J. Fidler, San Diego County.
Thomas W. Hagerty, Ventura County.
Dorothy B. Sproul, Ventura County.

(f) On motion duly made and seconded, seven applicants were elected to Affiliate Membership. These were:

Kern County: Robert D. Payne, S. Robert Polito, Keith W. Spaulding, Eugene P. Wagner.

San Francisco County: Rey Cardon, Theodore W. Loring, Edward E. Garvey.

It was pointed out that under the provisions adopted by the Council for eligibility for Affiliate

Membership, future applications of this type were to be handled in the office and need not come before the Council.

(g) On motion duly made and seconded in each instance, eleven applicants were granted a reduction of dues for illness or postgraduate study. These were:

Fresno County: Marvin J. Naman.

Kern County: William A. Craig, F. E. Davis, Robert M. Taylor.

Orange County: George H. Merryman, Jr.

San Francisco County: Barnet Bonar, Lester Sawyer, Arthur Siegel.

San Luis Obispo County: George O. French.

San Mateo County: Lamar B. Harper, Albert A. Miller.

(h) On motion duly made and seconded in each instance, two applicants were elected to Life Membership. These were:

Alameda County: Harold H. Meredith, William R. Reud.

3. *Financial:*

(a) A report of bank balances as of September 22, 1949, was received and ordered filed.

(b) A report of receipts and expenditures for August and for the two months of the fiscal year ended August 31, 1949, previously sent to all Councilors, was ordered filed.

4. *Public Policy and Legislation:*

Mr. Read reported on the propositions and candidates to appear on the special election ballot of November 8, 1949.

On motion duly made and seconded, it was voted to go on record as approving and supporting Proposition No. 1, a measure to provide loan funds for school construction.

5. *California Physicians' Service:*

Dr. Henry Gardner, secretary of C.P.S., reported that as of September 1, 1949, there were 10,200 physician members and over 822,000 beneficiary members of C.P.S. and that new members were coming in at the rate of 16,000 to 18,000 monthly. He also reported that C.P.S. now has its own public relations department and has distributed various pieces of literature.

Mr. Bowman, executive director of C.P.S., distributed a financial statement as of August 31, 1949, reported that the Fresno office had been reopened at the request of local physicians and that Fresno County is now operating as a part of the northern divisional setup under C.P.S.

Mr. Bowman further reported that the board of trustees of C.P.S. has established basic principles for contracting with counties for the care of indigents and that such contracts would be made only in close cooperation with county medical societies. He also stated that about 6,000 individual contracts are now in force and that only about 15 per cent of applicants for such contracts have been declined or rated up.

Dr. Gardner, in response to a question, stated that a proposal for correction of excessive payments for certain diagnostic medical services was under consideration by the trustees.

6. *Committees:*

(a) The chairman nominated, and the Council confirmed, Doctors Edwin L. Bruck (chairman), James Graeser and Carl Howson as a Committee on Chronic Diseases, to meet with officials of the State Department of Public Health.

(b) The chairman nominated, and the Council confirmed, Doctors William L. Bender (chairman), Jesse L. Carr, R. G. Frey, F. E. Jacobs, J. G. Manning, Edgar Hagg, William Neff, James Graeser, M. Horwitz and H. J. Kirchner as the C.M.A.'s recommendations to C.P.S. for its Fee Schedule Committee.

7. *Committee on Scientific Work:*

The Secretary reported that the Committee on Scientific Work had met with the section officers on September 18 to outline the program for the 1950 Annual Session and to arrange for scientific exhibits and medical motion pictures.

8. *Alameda and Contra Costa County Medical Societies:*

Dr. Lum stated that a proposal was under consideration for the merger of the county medical societies in Alameda and Contra Costa counties. He requested discussion and any expression of disapproval which the Councilors might have but none was offered.

9. *Association of Local Health Officers:*

Doctors Stanton Farnsworth (Oakland) and Glenn A. Westphal (Riverside County) appeared as representatives of the Association of Local Health Officers and expressed the thanks of their association for the cooperation extended by the Association. [The Chairman has named Doctors Wilbur, Askey, Alesen and Shipman as a committee to meet with this organization; these names subject to Council confirmation.]

10. *Blood Bank Commission:*

(a) The Chairman nominated Dr. John Lawrence of Los Angeles as a member of the Blood Bank Commission, to succeed Dr. E. Richmond Ware, resigned. The Council confirmed this appointment.

(b) A communication from Dr. John R. Upton, chairman of the Blood Bank Commission, was read, relative to the situation in Santa Barbara, Ventura and San Luis Obispo counties, where a tri-county blood bank was almost through the organizational stage when representatives of the American National Red Cross entered the picture and succeeded in blocking the new establishment. Dr. Upton asked for instructions in advance of a meeting scheduled for October 10 to review the situation. He recommended that the community type blood bank heretofore approved by the Council be reaffirmed as the best type of blood bank for Santa Barbara and neighboring counties.

On motion duly made and seconded, it was voted to approve the plan outlined by Dr. Upton, in reaffirmation of the earlier decision in favor of community type blood banks which assess a service charge at cost and provide for a deposit to secure replacement of blood.

On motion duly made and seconded, it was voted to plan a meeting with representatives of the Red Cross to discuss the entire problem. Representatives of the Council at this meeting are to be Doctors Upton, Garland and Shipman, with Dr. John W. Green, Councilor and member of the Blood Bank Commission of tfhe A.M.A.; it is hoped to confer with Dr. Peter Owen of the American National Red Cross.

11. *Industrial Medical Fees:*

Dr. Cass reviewed the progress of his committee in meeting with a committee of insurance carriers and recommended that the compromise fee schedule previously reported to the Council be accepted, that a standing committee be named to adjust differences through a similar committee of the insurance carriers and that the former fee schedule be put into effect again until January 1, 1950, when the insurance companies would plan to institute the new schedule.

Dr. Gerald G. Gill reported that a meeting of representatives of the Western Orthopedic Association and of other specialty societies had been held ten days earlier and that the group had voted unanimously to support the Council in its adoption of the 1949 proposed fee schedule.

Mr. Gordon Snow, chief counsel for Pacific Indemnity Co., presented Dr. Lester I. Newman and Messrs. John Knox and B. F. Meekins as representatives of the insurance carriers' coordinating committee. Mr. Snow reviewed the events leading up to the present fee schedule situation and asked that the compromise fee schedule and the other recommendations of Dr. Cass' committee be favorably acted upon.

After considerable discussion, it was regularly moved, seconded and voted to adopt the following resolution:

Resolved, That the Council reaffirm its confidence in its previously recommended 1949 schedule of industrial medical and surgical fees, that the special committee meeting with the coordinating committee of the insurance companies be instructed to continue its joint meetings in an effort to effect mutually acceptable revisions, that the Association assure the insurance coordinating committee of its full support in seeking premium adjustments to cover the cost of equitable professional fees and that each committee be requested to use its best efforts in preventing discrimination against physicians or insurance companies for supporting the 1949 schedule.

12. *Proposed Drugless Practitioner School:*

Assemblyman Richard Dolwig, San Mateo County, appeared by invitation to request authority for members of the Association to serve as instructors at a school proposed to be established to provide additional training for a group of drugless practitioners now holding licenses under the Board of Medical Examiners. It was regularly moved, seconded and voted to refer this matter to the standing Committee on Hospitals, Dispensaries and Clinics.

13. *Bureau of Vocational Rehabilitation:*

Dr. Herbert Notkin, medical consultant of the Bureau of Vocational Rehabilitation, Department of Education, State of California, introduced Mr. Hart, assistant director of the Bureau, and described the program and objectives of the bureau. Since its establishment, the bureau has placed 16,070 people in remunerative employment, at a cost of about $7,000,000; these people have since repaid about $2,500,000 in income taxes from such employment. Dr. Notkin expressed thanks to the Medical Advisory Committee of the bureau for aid and guidance in carrying out the medical and surgical aspects of the program.

14. *State Department of Public Health:*

Dr. Wilton L. Halverson, State Director of Public Health, reported that 1,644 cases of poliomyelitis had been reported in California to date this year and that the death rate was about 5 per cent. In July there were 18 deaths, 8 of them of persons above the age of 21. About 100 to 125 new cases are now being reported each week.

Dr. Halverson stated that a meeting would be held with the C.M.A. Committee on Chronic Diseases before any action would be taken on allocating federal funds which have recently become available for projects in heart disease and cancer. This meeting is scheduled for September 29, 1949.

Dr. Halverson distributed a statement of policy of the Hospital Advisory Committee of his department and expressed a desire to have a member of the Council named as a member of this committee.

Dr. Thompson reported on two meetings of the Hospital Advisory Committee to which he had been invited.

On motion regularly made and seconded, it was voted to appoint a special committee consisting of the president, the secretary and the legal counsel to draft a statement of policy of the Association relative to the contracting for medical care of indigents through private physicians and private hospitals and stating a policy relative to the use of state and/or federal funds for hospital construction.

15. *American Public Health Association:*

On motion regularly made and seconded, it was voted to authorize Doctors Louis Regan and William P. Shepard to represent the Association at the Annual Meeting of the American Public Health Association, to be held in New York the week of October 24, 1949.

16. *Committee on Hospitals, Dispensaries and Clinics:*

A report was read from the Committee on Hospitals, Dispensaries and Clinics, in which it was considered inadvisable for an inspection and report to be made on Weimar Joint Sanitarium. It was regularly moved, seconded and voted that a special committee consisting of Doctors John C. Sharp and Reginald Smart be appointed to make such an inspection for report to the Council.

17. *American Legion:*

A request was read from the American Legion, California Department, for participation in the formation and operation of a child health community development program. It was regularly moved, seconded and voted to defer action on this request until the program has been considered by the American Medical Association.

18. *California State Chamber of Commerce:*

A request for the signature of an officer of the Association on a letter soliciting physician memberships in the California State Chamber of Commerce was approved.

19. *Rural Health Conference:*

A request from Dr. Carroll B. Andrews for the appropriation of approximately $1,000 to cover the cost of a rural health conference was approved.

20. *Committee on Private Health Insurance Plans:*

Dr. Lum, chairman (Ray and Ball, members) of a special committee to consider the advisability of a standardized type of accident and health insurance, reported that the committee had been studying the feasibility of arranging a schedule of minimum fees to apply under such insurance; the committee intends to continue these studies on all existing plans and will make a later report.

In regard to the California Interscholastic Protection Federation, Dr. Lum reported on his correspondence on this matter and its was regularly moved, seconded and voted that the general outline be approved in principle.

21. *Time and Place of Next Meeting:*

The time and place of the next meeting were left at the discretion of the Chairman, who tentatively announced November 19 or 26 as the likely date.

Adjournment.

SIDNEY J. SHIPMAN, *Chairman*
L. HENRY GARLAND, *Secretary*

In Memoriam

ADAMS, ELLIOTT LEIGH. Died in Lodi, September 5, 1949, aged 48, of a heart attack. Graduate of the University of Colorado School of Medicine, Denver, 1932. Licensed in California in 1932. Dr. Adams was a member of the San Joaquin County Medical Society, the California Medical Association, and the American Medical Association.

✣

CHERRY, CREED FLANARY. Died in Los Angeles, September 18, 1949, aged 50, of a heart attack. Graduate of the University of Louisville School of Medicine, 1924. Licensed in California in 1928. Dr. Cherry was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

✣

PERRY, HERBERT BRAINERD. Died in Mare Island, August 31, 1949, aged 84, of pneumonia. Graduate of Bowdoin Medical School, Brunswick-Portland, 1890. Licensed in California in 1929. Dr. Perry was a member of the Sacramento Society for Medical Improvement, the California Medical Association, and the American Medical Association.

✣

RAMSAY, ROBERT EWART. Died September 19, 1949, aged 73. Graduate of the College of Physicians and Surgeons, Los Angeles, 1917. Licensed in California in 1917. Dr. Ramsay was a retired member of the Los Angeles County Medical Association, the California Medical Association, and an Affiliate Fellow of the American Medical Association.

NEWS and NOTES

NATIONAL • STATE • COUNTY

KINGS

Dr. Donald E. Upp has been appointed health officer of Kings County, replacing Dr. Paul L. Murphy, who had been serving in the position on an acting basis.

LOS ANGELES

A freshman class will begin studies at **the U. C. L. A. Medical School** in the fall of 1952, and second and third year students transferring from other medical schools will be accepted at the same time. This was the latest word last month from Dr. Stafford L. Warren, dean of the new school, following approval by the regents of the University of California of preliminary plans for the proposed $15,500,000 medical center on the U.C.L.A. campus. Construction of buildings is scheduled to start next fall and, it is estimated, will be completed in two years.

* * *

Approximately 300 members of the medical profession are reported to have been registered at the **First Annual Postgraduate Assembly** presented by the staff of Saint John's Hospital, Santa Monica, September 12 to 14. The assembly, which was under the direction of Dr. John C. Eagan, had as guest speakers Drs. Percy J. Carroll, Louis D. McGuire and Harry H. McCarthy of Creighton University School of Medicine, Malcolm Dockerty, Rochester, Minn., and Cyrus C. Sturgis, Ann Arbor, Mich.

Minutes of the assembly, including **abstracts of papers** presented, may be obtained from the medical records department of the hospital.

* * *

An Institute on Cerebral Palsy will be held November 18 and 19 in Los Angeles. The sessions, starting at 9:30 a.m. both days, will take place in the auditorium of the State Building, Civic Center, under the sponsorship of the State Departments of Health and Education, San Francisco State College, and the California and National Societies for Crippled Children and Adults. Physicians, nurses, physical and occupational therapists, teachers, educators and all others who are interested in problems of the cerebral palsied child are cordially invited.

On the morning of November 18, a cerebral palsy clinic will be conducted by Dr. Myer Perlstein of Chicago. Other **speakers will include** Dr. Herbert Stolz, deputy superintendent in charge of special schools and services, Miss Mabel Brenn, Mr. F. W. Doyle, Mr. Joseph Howard, Dr. Margaret Jones, Dr. Leo Cain, and Dr. Marcia Hays. Discussions will include problems of professional and community interrelationships, educational activities, speech education, diagnosis and screening methods, legislation, recruitment of personnel, interdependence of health and education, all as applied specifically to cerebral palsy.

Further information may be obtained by writing Donald K. Freedman, M.D., medical officer, Crippled Children Services, State Department of Public Health, 760 Market Street, San Francisco 2.

Appointment of **Dr. Alex A. Day**, formerly professor and chairman of the department of bacteriology and immunology at Northwestern University Medical School, as coordinator of the Los Angeles Health Department's laboratory services was announced last month by Dr. George M. Uhl, city health officer. Increases in laboratory services performed by the health department have made necessary the opening of four branch laboratory units in the city. Plans for **unified housing of all laboratory** facilities in the new central health building will be a major concern of the new coordinator.

Dr. L. V. Dieter will continue to serve as director of the city health department's central laboratory in the civic center.

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A $700,000 grant by the U. S. Public Health Service to assist in construction of **cancer research facilities** at the Medical School of the University of California at Los Angeles was announced recently. Part of a total of $3,250,000 in grants made for facilities to be used by medical schools, the award was made upon the recommendation of National Advisory Cancer Council. "Our chief aim in making the grants," according to Surgeon General Leonard A. Scheele, "is to further cancer research by helping provide more adequate facilities for cancer investigators, but the strengthening of medical education, especially with regard to the cancer training of future physicians, is an important by-product."

SAN FRANCISCO

Dr. Edward B. Shaw, associate clinical professor of pediatrics in the University of California Medical School, has been appointed by President Truman to the National Committee for the Mid-Century White House Conference on Children and Youth. The conference will meet next year —the exact date has not yet been set—to study the health education, development and welfare needs of the children of the United States.

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Dr. William McD. Hammon, professor of epidemiology at the University of California Medical School and assistant director of the Hooper Foundation, has been appointed professor and head of the department of epidemiology of the Graduate School of Public Health, University of Pittsburgh, according to recent announcement by Dr. Thomas Parran, dean of the school. Dr. Hammon is scheduled to assume the new post February 1, 1950.

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More than 2,500 physicians from Canada, Cuba, Central and South America, and Mexico as well as from the United States are reported to have made reservations for the 18th annual **convention of the American Academy of Pediatrics** which is to be held in San Francisco, November 14 to 17.

POSTGRADUATE EDUCATION NOTICES

American College of Physicians

Course: The Physiological Approach to Clinical Problems in Cardiovascular Disease.

Date: December 5 through December 10, 1949.

Fee: $30.00, A.C.P. members and V.A. (P.L. 346); $60.00 non-members.

Contact: George C. Griffith, M.D., F.A.C.P., Director; University of Southern California School of Medicine, Los Angeles 33, California.

California Chapter of the American College of Chest Physicians

Course: Diseases of the Chest.

In cooperation with the University of California Medical School and Stanford University School of Medicine.

Date: December 5 through 9, 1949.

Contact: Stacy R. Mettier, M.D., Medical Extension, University of California Medical Center, San Francisco 22, California. Fee and printed program supplied on requests including veterans.

College of Medical Evangelists, Graduate School of Medicine

Course: Genito-urinary Diseases.

Date: November 14 through November 18, 1949. Daily 10:00 a.m. to 2:00 p.m.

Fee: $50.00.

Course: Diseases of the Kidneys.

Date: November 15 through December 20, 1949. Tuesdays 7:30 to 9:00 p.m.

Fee: $25.00.

Courses in Internal Medicine, Dermatology, Functional Diseases in General Practice, General Urology, Neurology, Proctology, Cardiology, Ophthalmology and Varicose Veins will be offered in January and March of 1950.

Contact: H. M. Walton, M.D., Dean, Graduate School of Medicine, College of Medical Evangelists, 312 No. Boyle Avenue, Los Angeles 33, California.

University of California, Los Angeles

Course: A series of lectures in the Basic Sciences as applied to Bone and Joint Surgery will be sponsored by the Division of Orthopedic Surgery, General Medical and Surgical Hospital, Veterans Administration Center, Los Angeles, and the Orthopedic Hospital of Ls Angeles. The complete series will extend over a two-year period, with a total of 40 lectures, 20 sessions per year.

Contact: Office of Medical Extension, University Extension, University of California, Los Angeles 24, California.

University of Southern California

Full time and short courses are conducted by the faculty of the School of Medicine, using the facilities of affiliated institutions.

Course: 831. Internal Medicine, 9 months, 40 hours per week, general and specialty services.

Date: December 5, 1949.

Fee: $750.00, also G.I. students.

Contact: Edward C. Rosenow, Jr., M.D., Director, Medical Extension Education, University of Southern California, School of Medicine, Los Angeles County General Hospital, Box 158, 1200 North State Street, Los Angeles 33, California.

Stockton Postgraduate Study Club

Meetings will be held in the Lecture Hall, Stockton State Hospital, in the Psychopathic Hospital Building on Magnolia Street.

November 17 (Thursday), 8 p.m.—"Surgical Diseases of the Biliary Tract," Dr. Wm. Longmire, Jr., Chairman Department of Surgery of School of Medicine, University of California at Los Angeles.

December 8 (Thursday), 6:30 p.m.—Annual Dinner Meeting (place to be announced).

"Recent Developments in Virus Diseases and Their Treatment," Dr. Karl F. Meyer, Director of Hooper Institute Foundation for Medical Research.

Contact: C. A. Broaddus, M.D., Chairman, 242 N. Sutter Street, Stockton, California.

TULARE

Dr. J. Earl Jones of Compton has been appointed medical superintendent of Tulare County Hospital by the county board of supervisors. The appointment, which became effective November 1, was made to fill the vacancy created when Dr. A. Wallner resigned last summer. Dr. A. L. Boucher had been serving in the position in the interim.

GENERAL

Dr. Clayton Mote of San Francisco has been elected president of the California **Board of Medical Examiners.** He succeeds Dr. William F. Quinn, Los Angeles, who remains on the board. Dr. Wilbur Bailey, Los Angeles, was elected vice-president, and Dr. Frederick N. Scatena was reelected secretary-treasurer.

A postgraduate **course in diseases of the chest** will be held in New York City November 14 to 18 under the sponsorship of the Council on Postgraduate Medical Education and the New York State chapter of the American College of Chest Physicians. For registration or further information, address American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

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Malignant tumors, their diagnosis and treatment, will be the theme of the 35th annual meeting of the **Radiological Society of North America** to be held in Cleveland, December 4 to 9. Attendance is expected to reach 2,000, according to Dr. Edgar P. McNamee, president of the society.

Information concerning the convention can be obtained from Dr. Donald S. Childs, secretary-treasurer, 713 East Genesee Street, Syracuse 2, New York.

The Council on Industrial Health of the American Medical Association will hold its tenth annual **Congress on Industrial Health** at the Roosevelt Hotel in New York City, February 20 and 21.

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The eighth annual meeting of the **American Academy of Dermatology and Syphilology** will be held in Chicago, December 2 to 8. Further information may be had from Dr. Earl D. Osborne, secretary-treasurer of the Academy, 71 North Street, Buffalo, N. Y.

* * *

The sixth annual conference of **County Medical Society Officers** will be held Thursday evening, December 8, at the Hotel Statler, Washington, D. C. Planned for discussion are "Outstanding Achievements in Community Medical Leadership." The conference is sponsored by the board of trustees of the American Medical Association and is conducted by county medical society officers. All registrants for the A.M.A. Clinical Session, which is to be held December 6 to 9 in Washington, are invited to attend.

* * *

The American Epilepsy League and the National Association to Control Epilepsy recently announced that they have united to form the **National Epilepsy League,** with headquarters in Chicago. The new organization states as its purposes: To encourage research in the causes and prevention of epilepsy; to assist epileptics by compiling information on available medical resources, school facilities and job opportunities; to dissolve the stigma associated with epilepsy by focusing public and medical attention on the opportunities for control of the seizures which mark the disorder.

Ben H. Gray, who was national director of the American Epilepsy League, will continue as executive officer for the new organization.

The directorate of the new league will include present board members of both organizations.

A National **Conference on Cardiovascular Diseases** will be held in Washington, D. C., January 18 to 20, 1950, under the joint sponsorship of the American Heart Association and the National Heart Institute of the U. S. Public Health Service. Official announcement of the conference said that "this will be the first national conference bringing together physicians, scientists, community service leaders, and members of allied professions to formulate a comprehensive program to combat the nation's leading cause of death."

* * *

A group of doctors in Santa Clara, Santa Cruz, and San Mateo counties has been instrumental in bringing to the medical profession a **new psychiatric facility** in the form of a modern, non-profit, rehabilitation and convalescent center between Santa Cruz and Los Gatos.

Tre Monte Foundation is the result of several years of groundwork put in by interested doctors and lay associates in an effort to establish a satisfactory place to send the psychiatric patient who needs help away from the home environment but is not in need of the locked-ward type of hospitalization offered in mental hospitals.

The facility is on a 63-acre site 12 miles from Los Gatos, at an elevation of 1,900 feet. Some of its physical assets consists of a beautiful locality and excellent buildings ample for the beginning of a 15-patient "pilot unit" and housing for the resident staff.

A resident physician with psychiatric training has been hired and the foundation planned to open its doors to patients on October 1, 1949.

The board of directors consists of John D. Fuller, M.D., Santa Cruz, president; B. M. Brundage, M.D., San Jose, vice-president; David R. Sears, M.D., San Mateo, treasurer; Patrick H. Peabody, Los Gatos; Reginald A. F. Loftus, R.S.W., Los Gatos, secretary and executive director; Louis Pasquinelli, San Jose, counsel; Milton Rose, M.D., Palo Alto; Kim Canavarro, M.D., Morgan Hill; James B. Vail, M.D., Santa Cruz; C. C. Smith, M.D., Saratoga; Marshall Mason, M.D., San Jose; Mrs. Mildred M. Prince, Los Gatos and San Francisco; and Mrs. Isabel Sullivan, San Mateo.

David Villasenor, well known artist and vocational therapist, will act as director of occupational and recreational therapies.

INFORMATION

"Dangerous Drugs" and Narcotic Legislation Affect Physicians

Legislation to control the use of hypnotic and other dangerous drugs which was enacted by the 1949 session of the California Legislature requires additional record-keeping by physicians.

Physicians also are affected by changes made by the Legislature in the State Narcotic Act. The Narcotic Act amendments went into effect October 1 and the new "dangerous drugs" law November 1.

When drugs defined in the new legislation as dangerous are *dispensed* by a physician he must keep a record showing the kind of and amount of the drug, the date dispensed, the serial numbers on containers, and the name and address of the patient. Distinction is made, however, between *dispensing* the drugs and *administering* them. No record need be kept if the drugs are administered directly to patients.

The new law does not affect present regulations governing the writing of prescriptions for hypnotic drugs to be filled by pharmacists.

DANGEROUS DRUGS LISTED

"Dangerous drug" is defined in the legislation as any drug unsafe for self-medication. Listed in the act are:

(a) Any hypnotic drug. "Hypnotic drug" includes acetylurea derivatives, barbituric acid derivatives, chloral, paraldehyde, phenylhydantoin derivatives, sulfonmethane derivatives, or any compounds or mixtures or preparations that may be used for producing hypnotic effects.

(b) Aminopyrine, or compounds or mixtures thereof.

(c) Amphetamine, desoxyephedrine, or compounds or mixtures thereof except preparations for use in the nose and unfit for internal use.

(d) Cinchophen, neocinchophen, or compounds or mixtures thereof.

(e) Diethylstilbestrol or compounds or mixtures thereof.

(f) Ergot, cotton root, or their contained or derived active compounds or mixtures thereof, and except preparations designed for the purpose of treating animals (other than man) or poultry and so labeled.

(g) Oils of croton, rue, savin or tansy or their contained or derived compounds or mixtures thereof.

(h) Sulfanilamide or substituted sulfanilamides, or compounds or mixtures thereof, except preparations for topical application only containing not more than five per cent (5%) strength, and except preparations designed for the purpose of treating animals (other than man) or poultry and so labeled.

(i) Thyroid and its contained or derived active compounds or mixtures thereof.

CHANGES IN NARCOTIC ACT

Principal changes in the Narcotic Act affecting physicians are explained in a communication from W. R. Creighton, chief of the Division of Narcotic Enforcement.

"In addition to the narcotic drugs set forth in Chapter 931 of the Statutes of 1947, which included Cocaine, Opium, Morphine, Codeine, Heroin, Alpha Eucaine, Beta Eucaine, Cannabis sativa, and Isonipecaine, there have been added Amidone and genera lophophora.

"With reference to Amidone, Chapter 1475 of the Statutes of 1949, this name shall mean any substance identified chemically as 4.4-diphenyl-6-dimethylaminoheptanone-3, or any salt thereof by whatever trade name designated.

"With reference to prescribing this drug, regardless of whatever trade name may be designated, it is to be kept in mind that such prescribing shall be by way of the official triplicate narcotic prescription blank.

"*Section 11166* has been amended as follows:

'Section 11166. No person shall write a prescription [for a narcotic drug] unless it is wholly written in ink or indelible pencil in the handwriting of the prescriber, signed and dated by him as of the date on which it is written, contains the name and address of the person for whom prescribed and states the name and the quantity of the narcotic prescribed.' [A new section also forbids filling, compounding or dispensing a prescription for a narcotic drug unless it is so written.]

"*Section 11166:12* has been amended to read:

'Section 11166.12. The provisions of this code with reference to the writing of narcotic prescriptions on official triplicate blanks and the filling thereof do not apply to any of the following: (a) Codeine or dihydrocodeinone combined with other non-narcotic medicinal ingredients. (b) Codeine in combination with any of the narcotic drugs mentioned in this section, with the exception of dihydrocodeinone. (c) Preparations containing not more than two grains of opium to the fluid or avoidupois ounce combined with other non-narcotic medicinal ingredients except codeine. (d) Apomorphine hydrochloride. (e) Ethylmorphine hydrochloride. (f) Papaverine hydrochloride.

'Any of the combinations mentioned in the above subsections must be in the handwriting of the prescriber on the prescriber's regular prescription blanks.'

"*Section 11166.13*, which makes reference to codeine, dihydrocodeinone, and tincture opii camphorata (paregoric), being prescribed on the official triplicate blanks, has been added.

"Relative to the treatment of narcotic addicts for addiction, *Section 11390.5* has been added:

'Section 11390.5. No physician or other person shall order, permit or direct any person other than a registered nurse, or other physician, to administer a narcotic to a person being treated for narcotic addiction.'

"*Section 11391*, regarding the same subject, has been revised to read:

'Section 11391. No person shall treat an addict for addiction except in one of the following: (a) An institution approved by the Board of Medical Examiners, and where the patient is at all times kept under restraint and control. (b) A city or county jail. (c) A state prison. (d) A state narcotic hospital. (e) A state hospital. (f) a county hospital.

'This section does not apply during emergency treatment or where the patient's addiction is complicated by the presence of incurable diseases, serious accident, or injury, or the infirmities of old age.'

"*Section 11392* and *11393*, also regarding the treatment of addicts for addiction, have been revised as follows:

'Section 11392. A physician treating an addict for addiction shall not prescribe for or furnish the addict more than one of the following amounts of narcotics during each of the first 15 days of such treatment: (a) Eight grains of opium. (b) Four grains of morphine. (c) Six grains of Pantopon. (d) One grain of Dilaudid. (e) Four hundred milligrams of Isonipecaine (Demerol). (f) One hundred eighty milligrams of Amidone.

'Section 11393. After 15 days of treatment the physician shall not prescribe for or furnish to the addict more than any one of the following amounts of narcotic drugs during each day of such treatment: (a) Four grains of opium. (b) Two grains of morphine. (c) Three grains of Pantopon. (d) One-half grain of Dilaudid. (e) Two hundred milligrams of Isonipecaine (Demerol). (f) Ninety milligrams of Amidone.' "

C.P.S. Payments to be Higher

Total annual payments by California Physicians' Service to its physician-members will be significantly increased as a result of the new C.P.S. fee schedule now in effect, according to the C.P.S. board of trustees.

Copies of the revised fee schedule, effective September 1, have been distributed to all physician-members. It incorporates recommendations made by the Fee Schedule Committee originally appointed by the Council of the California Medical Association and subsequently affirmed by the C.P.S. board of trustees.

The committee held numerous conferences with interested special sections of C.M.A. and also studied correspondence regarding specific fees which had been received by C.P.S. during the past two years.

According to C.P.S., the primary intent of the new schedule is "to correct obvious inequities and, from an over-all point of view, to increase total payments to the profession."

"Because of the increase in total payments," it was explained, "it was necessary to change the percentage of the fees shown in the schedule from 86 to 80 per cent. Nevertheless, the amount of money paid in a year to physicians under the new schedule will greatly exceed payments under the old schedule."

An important increase affects Procedure No. 011, for example, the follow-up office visit. In the old schedule it was listed at $2.50, but on the new schedule will be $3.00, a 20 per cent increase.

Procedure No. 005 (consultation in which the patient is returned to referring physician for treatment) is raised from $10 to $15 when performed in the office or hospital and from $15 to $20 in the home.

Procedure No. 166 (tumor of the breast, biopsy or removal of small tumor) is raised from $25 to $75.

Other specific items have been changed or added to the schedule, including a reduction in x-ray and laboratory fees.

The new schedule does not affect the treatment of veterans under the C.P.S. home town care program, inasmuch as present fees for veterans must continue until expiration of the current contract with the Veterans Administration.

Simple Form for Certifying Patients For Hospital Benefits

Physicians called upon to attest the hospitalization of a patient, a requirement which must be met in order to qualify the patient for additional benefits under California's liberalized disability insurance plan, may do so by filling out only one added space on the usual report filed with the California State Department of Employment.

The 1949 Legislature revised the disability insurance law to provide that after January 1, 1950, workers covered by the act will be eligible to receive a payment of $8 per day for hospitalization ordered by a physician. This extra benefit will be paid for not more than 12 days of hospitalization in any one year, but it is over and above the disability payments already provided.

The new form on which the physician is to certify that a patient has been hospitalized will be the same as the one now being used for filing claims for disability benefits, except that it will now include the further question:

In what hospital was or is claimant confined as a patient?
Name ....
Address ....
Date and hour entered and discharged from such hospital pursuant to your orders:
Entered ..........A.M. Discharged ..........A.M.
on ....19...... at ........P.M. on ....19...... at ........P.M.

Burt S. Thomas, M.D., medical director of the Department of Employment, said that in devising the new form emphasis was put upon holding to a minimum the additional paper work called for from physicians.

Hospitalization benefits are expected to add $1,000,000 a month to the more than $2,000,000 monthly now being paid out in sickness benefits, Dr. Thomas said. The payments will not be made to hospitals, but directly to the insured worker, he said.

BOOK REVIEWS

TREATMENT IN PROCTOLOGY. By Robert Turell, B.S., M.D., Attending Proctologist, Hillside Hospital, New York, and a chapter on Psychosomatic Problems by Louis Linn, M.D., The Williams and Wilkins Company, Baltimore, 1949. $7.00.

The apparent purpose of this book is to display the author's instruments for use in proctologic procedures. Ten such instruments are prominently shown in 18 pictures. These are poor justification for publication of a book. The author contributes next to nothing to the text from personal experience, except perhaps his own enthusiasm for tattooing in the treatment of pruritus ani. Any value which the bibliography might have is lost because of the lack of specific reference in the text to the authors listed.

The subject matter is poorly balanced. The operative treatment of cancer of the colon and rectum is covered in two and one-half pages; the chapter on diverticulosis and diverticulitis contains less than three pages of text. Yet 25 pages are devoted to a rather loose discussion of pruritus ani and 20 pages to a chapter made up of a multiplicity of diet lists.

The chapter on Proctology in Geriatrics says, in two pages, that aging individuals are subject to the "usual" anorectocolonic diseases and that they should be treated.

An innovation in a textbook of proctology is a chapter entitled Psychosomatic Problems in Proctology, written by Louis Linn, M.D. Psychologic concepts which "may enrich our understanding of symptoms" are smoothly expounded. The reviewer is violently unsympathetic to the four examples given of application of these psychologic concepts:

1. Pruritus ani: ". . . frequently . . . a repressed impulse to masturbate."

2. Fissure-in-ano: "A minor crack . . . enlarged and perpetuated by anxiety-determined hypertonus of the anal sphincter."

3. Constipation: ". . . related to feeling of inferiority, depression, or sexual impotence."

4. Colitis: "Diarrhea . . . an autonomic expression of anxiety . . . Psychologic factors . . . mobilized from early childhood experiences in which the bowel movement and the soiling . . . are expressions of hostility toward the parents."

* * *

MANUAL OF MEDICAL EMERGENCIES. By Stuart C. Cullen, M.D., Professor of Surgery, Chairman, Division of Anesthesiology; and E. G. Gross, M.D., Professor and Head of Department of Pharmacology; State University of Iowa College of Medicine. The Year Book Publishers, Inc., Chicago, Ill. 1949. $3.75.

The authors have emphasized in the preface that the manual is designed to cover only the acute emergencies and in the 254 pages of text have managed to discuss, sometimes in detail, but usually concisely and pertinently, the usual emergency situation that confronts the general practitioner as well as many of the specialists. The chapters on Airway and Artificial Respiration and on Oxygen Therapy are particularly appropriate and serve to clarify problems that are ofttimes taken for granted, or left to an assistant, in emergency therapy. The chapters on Circulatory Emergencies, Acute Poisoning, and Allergic Disturbances utilize the most recent pharmacological advances where appropriate. It is the opinion of the reviewer that the manual serves the purpose for which it was intended. It is the suggestion of the reviewer that the purchaser familiarize himself with the manual when in a contemplative mood rather than await the moment of emergency.

FOOD AND FACTS FOR THE DIABETIC. By Joseph H. Barach, M.D., Associate Professor Medicine, School of Medicine, University of Pittsburgh, Oxford University Press, New York, 1949. $4.00.

This book, written for the diabetic patient, makes a more direct approach and a more complete presentation than any other book of this type with which this reviewer is familiar. It states clearly and interestingly the known facts about the disease diabetes, its clinical manifestations, the methods of diagnosis and the method and planning of treatment. The sources of food, its component parts and its handling in body metabolism are set forth in a clear fashion. The caloric values of food, the use of insulin and the laboratory tests for determining the adequacy of diabetic control are also clearly set forth.

The complications of diabetes are explained, the methods of their prevention highlighted, and their care, once they occur, detailed.

The management of diabetes in children receives special consideration.

Of particular value are diets accurately worked out not only for men but for women and for children. These are in greater detail than in any other texts known to the reviewer, and should be very helpful to the individual patient even after his training by a dietitian.

The reward for meticulous care in this disease is plainly set forth. Various tables deal with longevity, and 20 other purposeful and helpful tables are interwoven throughout the book.

The patient who familiarizes himself with the contents of this book and who follows its teaching will do especially well.

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MUSCLES—TESTING AND FUNCTION. By Henry O. Kendall and Florence P. Kendall, Physical Therapy Department, Children's Hospital School, Baltimore, Maryland. The Williams and Wilkins Company, Baltimore, Md., 1949. $7.50.

The authors have done an outstanding job in preparing and presenting the material on muscle testing contained in this book.

The chapter on the fundamental principles involved in manual muscle testing is complete, precise and understandable and includes a definition of terms, an explanation of muscle grading, a discussion as to what to expect of muscle function at different age levels and a suggested order for muscle testing.

A chapter is devoted to illustrations of muscle, nerve, and body mechanics and examination charts. Also included are illustrations demonstrating the course of spinal nerves, the location of motor points and the dermatomes and the cutaneous field of peripheral nerves.

A large section of the book is made up of a description of the technique of muscle testing. The test maneuver for each muscle is illustrated by a photograph which shows the muscle and/or tendon in action. These photographs are a highlight of the book and are a work of art.

The chapter which contains the illustrations of the facial muscles in action is particularly outstanding.

The appendix is devoted to a description of the origin, insertion and action of muscles.

The material presented in this book should be particularly valuable to the orthopedist, physiatrist and physical therapy technician and to all of those interested in the study of muscle function.

ATLAS OF ROENTGENOGRAPHIC POSITIONS. By Vinita Merrill, formerly Educational Director of Picker X-Ray Corporation. In two volumes. C. V. Mosby Company, St. Louis, 1949. $30.00.

This is a 680-page work illustrating the various positions used in roentgenographic examination of the human body. It is quite monumental in scope and deals with both elementary and moderately advanced roentgenographic technique. There are several hundred illustrations, many of them technically very good. It is to be regretted that these illustrations are not numbered, since several appear on a single page in some portions of the book. This makes ready reference to a certain figure somewhat troublesome.

There is nothing particularly new in the book. Indeed, in format, content and general makeup it is apparently based on the excellent "Positioning in Radiography" by K. C. Clark, issued by the same publishing firm in 1939. The latter had the advantage of being a single volume work, and all of the illustrations were numbered.

Some rarely used techniques are illustrated. One of these deals with the measurement of differences of leg length (page 244). It is rather curious that the author neglected to mention the use of scanograms for this purpose. Among somewhat new and unproven techniques illustrated by the author is one for alleged demonstration of the posterior costal articulations. It would seem to this reviewer that stereoscopy should aid considerably in this particular problem, and that the experimental nature of the projections which are illustrated might be stressed, inasmuch as these joints are notoriously difficult to project on two-dimensional records.

In the chapter on cerebral pneumography the diagrams showing the ventricular system are too small to be of value; no mention is made of the use of small amounts of air for this particular technical procedure. The book was apparently completed before realization of the availability of rapid film-changing devices or the roll film (Fairchild) camera for serial angiographic studies.

The text is clear. Most of the illustrations are good. The book will be of some value to larger x-ray departments which do not have a copy of the Clark text available.

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INDUSTRIAL TOXICOLOGY. By Lawrence T. Fairhall, Scientist Director, Public Health Service, Federal Security Agency. The Williams and Wilkins Company, Baltimore, 1949. $6.00.

This book has been written in response to many requests for information concerning the toxicity of new as well as old substances of industrial importance. Its purpose is to serve as a bridge between the rapidly expanding field of toxicological investigation and the application of this knowledge of industrial poisons by the industrial hygienist.

Many of the substances described are not poisons in the usual sense. Indeed, some are not toxic at all. These represent materials newly used in industry, however, and concerning which some doubt has existed.

The book is arranged in two parts, the first part dealing with inorganic substances, and these are listed in alphabetical order. Part II takes up the carbon compounds, and here again they are listed in alphabetical order. Each specific substance is discussed under the headings characteristics, industrial uses, toxicity, and analysis. At the end of the discussion of each substance there is a reference list. Each particular subject is treated succinctly and Dr. Fairhall has avoided discussing the opinions of others, therefore adhering to brevity.

As Dr. Fairhall himself intimates in his preface, the book has been streamlined for the industrial hygienist, and for him it will be of definite value. On the other hand, the general practitioner or industrial physician will not find that it gives him sufficient clinical information.

PSYCHOSOMATIC MEDICINE—The Clinical Application of Psychopathology to General Medical Problems. By Edward Weiss, M.D., Professor of Clinical Medicine, Temple University Medical School, Philadelphia, and O. Spurgeon English, M.D., Professor of Psychiatry, Temple University Medical School, Philadelphia. Second edition. W. B. Saunders Company, Philadelphia, 1949. $9.50.

This standard book in its new edition is an improved effort to get the practicing physician to more completely understand his patient. The emphasis is placed on the emotional factors in disease to counterbalance the still present overemphasis on the physiochemical and surgical aspects of illness. Attention is primarily directed to the large group of patients, perhaps one-third of the patients in most practices, who have no significant organic basis for their complaints, and to another third with significant organic disease who have an important emotional factor involved which materially aggravates the disability. One cannot practice medicine without practicing psychosomatic medicine.

In addition to orienting one in a reasonable manner to this larger view of the patient's difficulty, the practitioner has shown us how harm comes to the patient by improper handling of the patient's problem. Iatrogenic illness is still a significant cause of morbidity.

While this is not a book on psychiatry, there is sufficient psychiatric information given to enable one to adequately understand the emotional and mental factors in the patient's illness in the light of our present knowledge. Techniques for diagnosis are outlined and discussed. Psychotherapy is discussed in general and specific methods are given. The reader will find a host of specific diseases which are discussed from the standpoint of the effects of the emotions upon the disease or the prolongation of the disability. These include diseases relating to the heart, hypertension, indigestion, peptic ulcer, ulcerative colitis, arthritis, allergy, and backache. An excellent brief discussion is given of the male climacteric which will give the needle-happy practitioners cause for pause.

The authors give ample evidence of being capable practicing physicians who have interested themselves in a difficult field without going off on the tangent of unduly emphasizing the emotional factors in disease. This is a book which can be read with considerable profit by interns, residents, general practitioners, and specialists.

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THE VALUE OF HORMONES IN GENERAL PRACTICE. By W. N. Kemp, M.D., Vancouver, B. C., Burgess Publishing Co., 426 S. Sixth St., Minneapolis 15, Minn. 1949.

Dr. Kemp's ring-bound mimeo-form outline is commended by its small size (115 pages including selected references) and by the fact that it offers, in addition to such non-clinical topics as "iodine deficiency diseases in domestic animals," a number of useful suggestions for the practicing physician who sees an occasional instance of endocrine disease. In the section on adrenal hypofunction, for example, the author has thoughtfully included a list of emergency equipment which the Addisonian patient should keep on hand, and a good outline for the treatment of crises arising in the patient with and without previously implanted pellets of desoxycorticosterone.

The endocrinologist will be distressed by several uncritical statements given as facts, and by the author's several minor deviations from present belief and therapeutic dosage (as of antithyroid drugs), by the occasional errors of omission (Adrenocorticotropin hormone test for adrenal insufficiency, protein-bound iodine determinations) and commission (typographical errors). The author enthusiastically supports the syndrome of "status lymphaticus" and believes that it is endemic in all goiter districts, particularly in the Pacific Northwest. He believes that "status lymphaticus is not primarily related to the thymus, but is in reality a condition of functional imbalance involving primarily the newly developed adrenal cortex and, secondarily, as a conditioning and predisposing mechanism, iodine deficiency disease or hypothyroidism." He suggests the routine feeding of iodized milk to infants and children in goiter areas.

An effort is made, at the end of each section, to list the multitude of pharmaceutical preparations of hormones.

The outline will provide a useful and readily accessible array of information for the general practitioner who will find its therapeutic advice usually sound. Some of the opinions expressed in discussion should be accepted with caution.

* * *

ALLERGY TO COTTONSEED AND OTHER OILSEEDS AND THEIR EDIBLE DERIVATIVES. Excerpts from Testimony before the Administrator, Federal Security Agency, in the Matter of Fixing and Establishing Definitions and Standards of Identity for Mayonnaise, French Dressing, and Related Salad Dressings (Docket FDC-51). Public Hearing held at Washington, D. C., November 18, 1947, and January 6 to 8, 1948. Cloth. Pp. 275. National Cottonseed Products Association, Inc., Sterick Bldg., Memphis 3, Tenn., 1948.

Students have agreed for three decades that severe food allergy requires the elimination of every trace of the causative food. Many allergists have witnessed exaggerations of symptoms when the odor of the responsible food has been in the air inspired by the patient. The attempt to exclude all traces of the allergenic or suspected foods has naturally led to the recommendation that the oils of such foods be eliminated from the diet.

This book contains testimony of six allergists concerning clinical allergy from cottonseed oil in patients sensitive to cottonseed. Only two concluded that such symptoms occur. Two technicians, moreover, stated that the apparatus used for the commercial refining of vegetable oils is not thoroughly cleaned before it is used for the refining of another oil. Therefore few if any commercial vegetable oils can be labeled 100 per cent pure.

Thus the Association of Cottonseed Products, who publishes this book, contends that the labels on foods need not list the type of vegetable oil used in the preparation of such foods.

Evidence presented in this book indicates that cottonseed oil does not contain the allergens which cause clinical symptoms. This conclusion needs further confirmation, in this writer's opinion, by the ingestion of cottonseed oil by other cottonseed-sensitive individuals. Because of the great value of the listing of all foods and other substance in commercial food products, it seems advisable to state on the labels of such foods the types of vegetable oils utilized, even though traces of other oils unavoidably are in them.

* * *

HISTOLOGY AND HISTOPATHOLOGY OF THE EYE AND ITS ADNEXA. By I. G. Sommers, M.D., Assistant Professor (Ophthalmology), College of Medical Evangelists, Grune and Stratton, New York, 1949. $12.00.

This textbook is in its first edition. The author's purpose in writing the text was to correlate histopathology and histology of the eye so the student and practicing ophthalmologist could have a text which is simply arranged and easily read.

The book is arranged in three parts. The first part includes normal histology, embryology and senescence. The second part is made up of general pathology. The third part is made up of the histopathology of the eye.

The author has used a different approach in handling his source materials and bibliographies. This method of approach gives a running resume of pertinent findings of many authors at the end of each part. The bibliography is then conventionally placed at the end for reference work.

This book should find a good reception because of its ease of reading.

* * *

ORAL AND DENTAL DIAGNOSIS WITH SUGGESTIONS FOR TREATMENT. Kurt H. Thoma, D.M.D., (Eng.) Professor of Oral Surgery, Emeritus, and Brackett Professor of Oral Pathology, Harvard University. Third Edition. 776 illustrations, 60 in color. W. B. Saunders Company, Philadelphia, 1949. $9.50.

Dr. Thoma has done an excellent job of revision on his well known book on oral and dental diagnosis.

The important new material on dental caries and periodontal diseases has been added. Modern clinical and laboratory methods applicable to oral diagnosis are presented. The chapters on case history taking and case records, especially photographic, are nicely presented.

The book is, in a sense, a brief of Dr. Thoma's larger volume entitled "Oral Pathology," which is without a doubt the leading book in the field of oral and dental pathology.

"Oral and Dental Diagnosis" is an ideal reference book for the medical practitioner who is so frequently confronted by problems related to the oral region.

* * *

TOXIC EYE HAZARDS—A manual prepared by the Joint Committee on Industrial Ophthalmology of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology. The National Society for the Prevention of Blindness, Inc., 1790 Broadway, New York 19, 1949. $1.00.

The increasingly prominent position chemical eye injuries are assuming in the field of industrial ophthalmology led the joint Committee on Industrial Ophthalmology of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology to prepare this manual so that it would be useful to both laymen and professional personnel.

The pamphlet is divided into three chapters, the first of which discusses the various types of protective equipment to be used in the presence of chemical hazards as well as a well-organized program for safety from chemical exposure.

Chapter two presents detailed tables of the inorganic and organic chemicals that are used in industry, together with their toxic effects on the ocular structures.

Chapter three is a two-page concise account of the emergency and first aid procedures in chemical injuries of the eye.

A review of this practical and inexpensive manual justifies the hope of the committee that it "will become an indispensable part of the library of anyone and everyone dealing with industrial eye injuries: safety men, nurses, claim adjustors, insurance research men, directors of medical departments and ophthalmologists."

* * *

ELECTROCARDIOGRAPHIC TECHNIQUE. By Kurt Schnitzer, R.T., M.D. A Manual for Physicians and Technicians. Grune and Stratton, New York, 1949. $3.50.

This manual is written expressly for electrocardiograph technicians and thus deals almost exclusively with procedure. The major part of the book is a series of detailed, diagrammed and illustrated instructions for recording standard leads, chest-extremity leads, and unipolar chest and limb leads with each of the electrocardiograph machines in common use. The descriptions of procedure are clear and concise. Information as to proper preparation of the patient and the etiology of common artefacts is adequate.

The general style is good, but frequent use is made of terms and expressions beyond the average technician's knowledge. The introductory and general remarks are on such a level that the technician will probably need the physician's assistance. However, despite this, the book fills a definite need in that it serves as a handy reference guide for proper technique. As such, it is a valuable addition to the electrocardiograph laboratory library.

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The Problem of the Acquired Short Esophagus

Report of Eighteen Patients

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SUMMARY

A shortened esophagus is probably acquired, rather than congenital, in the great majority of cases. The process by which the shortening develops, as described by Allison and his coworkers, begins with esophageal hiatal hernia, followed by esophagitis caused by the irritation of acids from the stomach, then recurrent ulceration and healing which forms scar tissue which little by little shortens the esophagus.

Obesity and relaxation of the supporting musculotendinous structures which accompany advancing years probably are contributory factors in production of esophageal hiatal hernia. Fifteen of a series of 18 patients noted the onset of symptoms on or after the age of 45.

Roentgen examination of the esophagus and stomach is indispensable in establishing a diagnosis of acquired short esophagus. Esophagoscopic examination is even more important. In some cases endoscopic differentiation between acute inflammation and carcinoma is difficult. In such circumstances examination of a biopsy specimen taken from the gastric mucosa immediately distal to the area of inflammation or stricture may be helpful.

Results in eight patients with advanced esophageal shortening and stricture who were treated conservatively indicate that this should be tried before surgical treatment is considered. For patients with esophageal hiatal hernia accompanied by shortening of the esophagus that is just beginning to produce symptoms, early repair is indicated, since the condition is progressive and the surgical problem is much simpler in the early stages.

PEPTIC ulceration may occur at the cardioesophageal junction when there is derangement of the sphincter mechanism controlling this point of union between the esophagus and the stomach. Regurgitation of the secretions of the stomach into the lower end of the esophagus occurs most commonly as a result of esophageal hiatal hernia. In addition, it is possible in the case of esophageal hiatal hernia that the diaphragm plays a role in the concentration of gastric juice in the supradiaphragmatic portion of the stomach by offering some obstruction to complete emptying of the fundal end of the stomach, particularly when an individual so afflicted is in the horizontal position.

Esophageal hiatal hernias have been classified into three types (Figure 1):

(a) The para-esophageal hiatal hernia. In this type, the esophagus is of normal length, but a portion of the stomach has herniated into the posterior

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Presented as part of a Symposium on Diseases of the Gastrointestinal Tract before a Joint Meeting of the Sections on General Surgery, General Medicine, General Practice and Radiology at the 78th Annual Session of the California Medical Association, Los Angeles, May 8-11, 1949.

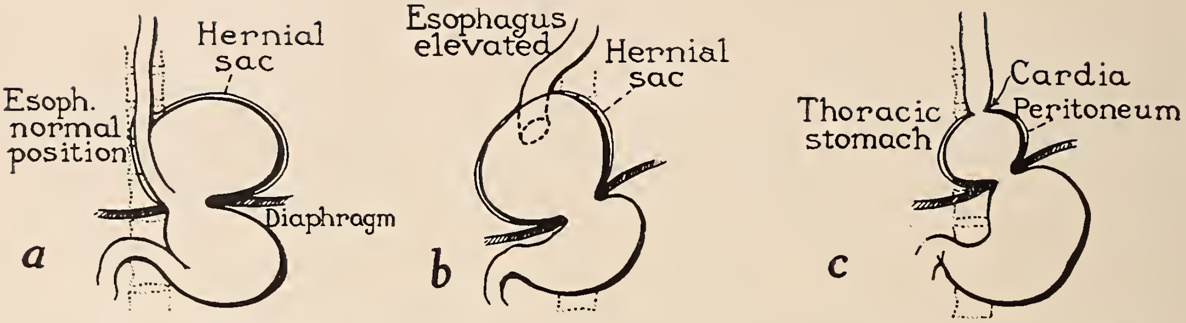

Fig. 1.—Three types of esophageal hiatal hernia; *a*, para-esophageal; *b*, sliding; *c*, short esophagus type.

From Esophageal Hiatal Hernias by A. M. Olsen, M.D., & S. W. Harrington, M.D., p.190, Journal of Thoracic Surgery, April 1948.

mediastinum beside the esophagus. This is the least common of the three types.

(b) The sliding or gastroesophageal type. This is the most common form of hiatal hernia. The esophagus is of normal length, but is elevated above the level of the diaphragm and a portion of the stomach is herniated into the posterior mediastinum. It is the belief of the author that this type of hernia may develop into the acquired short variety and therefore must be observed at regular intervals because the surgical repair of the sliding hernia is much simpler than in the case of the acquired short type.

(c) The congenital or acquired short esophagus with partial thoracic stomach.

It is probably true that the congenital short esophagus with partial thoracic stomach is an uncommon anomaly. Most persons with esophageal hiatal hernias with shortened esophagus and partial thoracic stomach acquire the shortened esophagus in the manner described by Allison and his coworkers.[1, 2] When the lower esophagus is being constantly bathed by acid from the stomach, a well-defined series of changes is found there. First there is recurrent acute esophagitis which passes on to a chronic esophagitis with recurrent acute ulceration. The acute ulcer progresses to a typical chronic ulcer. The ulcer, with its surrounding induration, produces stenosis, and above this stricture there is intense superficial inflammation. Finally, a dense fibrous stenosis is produced. Each acute exacerbation of this chronic ulcer produces additional scarring with resultant shortening of the esophagus. As the esophagus shortens, more of the stomach is pulled up into the thoracic cavity. Eventually the cardioesophageal junction may be up to the level of the inferior pulmonary vein.

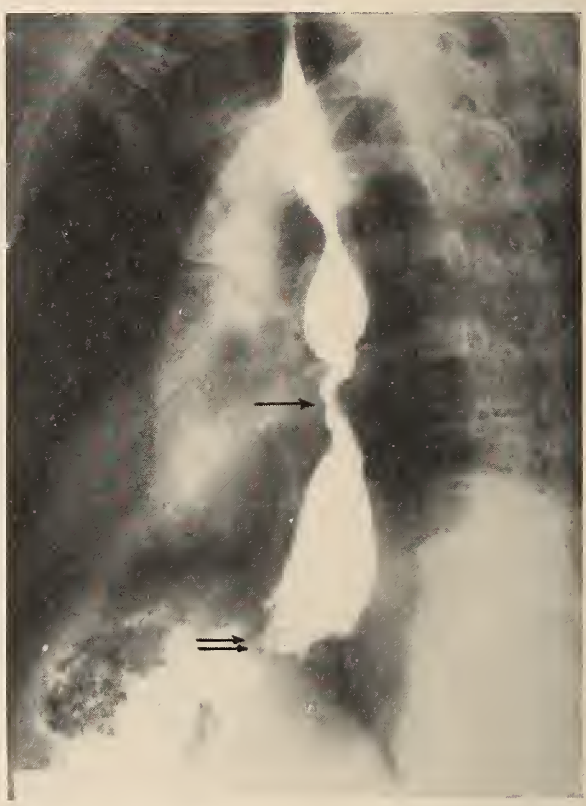

Plate I.—The single arrow shows the cardioesophageal junction at the level of the inferior pulmonary vein. The double arrow shows the hiatus opening in the diaphragm.

Since the enlarged esophageal hiatus is the probable basis for the development of all types of esophageal hiatal hernias, some understanding of the basic embryology is in order. Olsen and Harrington[3] point out that the formation of the diaphragm coincides with the descent of the stomach from its thoracic position. The esophageal hiatus is formed by the closure of the diaphragm about the lower end of the esophagus. If the descent of the stomach is delayed, the esophageal hiatus will form about the cardiac end of the stomach. Thus the esophageal hiatus will be abnormally large. In a few instances, no further descent of the stomach will occur, and the result will be a true congenital short esophagus with partial thoracic stomach. However, in most instances, the stomach will continue its descent into the abdomen, thus producing an esophagus of normal length but leaving an esophageal hiatus that is large or incompetent.

Obesity and relaxation of the supporting musculotendinous structures accompany advancing years. It would seem logical that both of these conditions are important contributory factors in the production of esophageal hiatal hernia. The significance of age (Chart 1) in the etiology of the acquired short esophagus is demonstrated in the present series of 18 patients. Fifteen of these patients noted the onset of symptoms on or after the age of 45. Acrosclerosis was present in one of the three patients who had symptoms before that age, and another had had an operation to enlarge the cardioesophageal junction because of cardiospasm. A small portion of the stomach is above the diaphragm in this patient, and it is believed that an esophageal hiatal hernia was inadvertently produced when the operation to correct the cardiospasm was done.

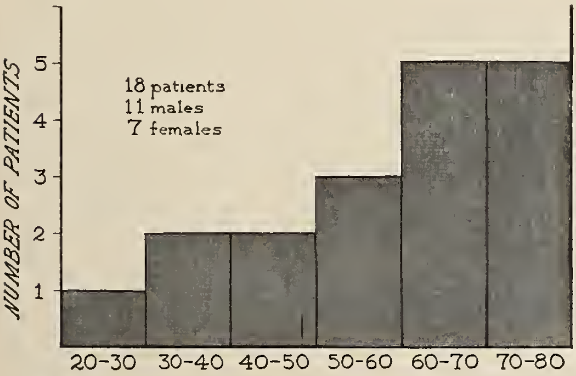

Chart 1.—Showing ages at which symptoms began in 18 patients having short esophagus with intrathoracic stomach.

There were 11 males and seven females in this group of patients who are believed to have the acquired type of esophageal hiatal hernia with shortened esophagus. This same predominance of males was present in the larger series reported by Olsen and Harrington.[3]

The majority of the 18 patients had had symptoms for several years (Chart 2). This is to be expected since dysphagia (Table 1) was an important symptom in 13 of the group. Esophagitis and acute ulceration of the esophagus express their presence by producing pain high in the epigastrium and beneath the sternum. The gastric contents may regurgitate into the throat, especially in the recumbent position, causing an extremely distressing burning sensation beneath the entire length of the sternum. Many of the patients in this group had noted the increase of the severity of their symptoms when they were in the prone, supine, or forward-bent position, and, without professional instruction, had adopted the upright position when resting or sleeping.

The chief symptoms of the chronic ulcer at the lower end of the esophagus are dysphagia and vomiting. Occasionally, stenosis is so severe that even

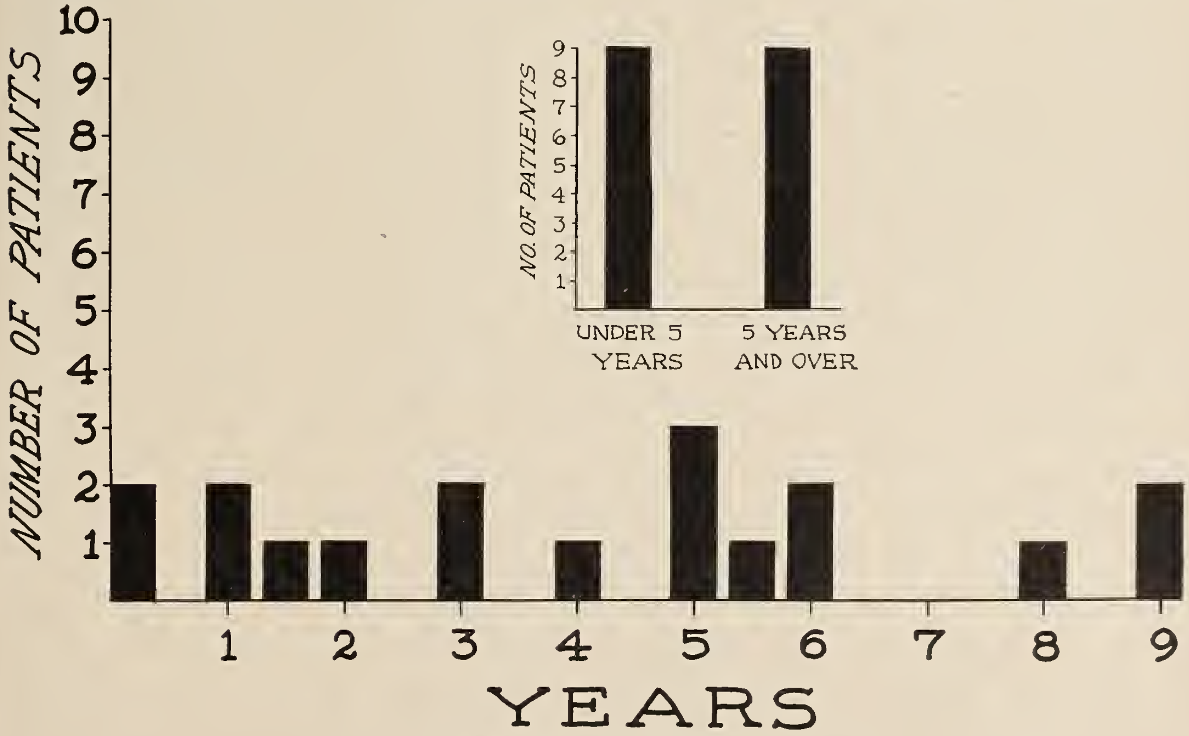

Chart 2.—Showing duration of symptoms in 18 patients.

TABLE 1

Symptoms	*No. Patients Afflicted*
Dysphagia	13
Vomiting	10
Pain	9
Melena	6
Hematemesis	6

liquids are taken with difficulty. Table 1 lists the important symptoms and their relative frequency in the group of patients observed. Bleeding into the gastrointestinal tract occurred in one-third of the group. The bleeding was severe in several of the patients, the quantity of blood passed per rectum being greatly in excess of the amount of hematemesis.

Dysphagia and vomiting are usually late symptoms but, on occasions, may appear before there is actual stricture formation. In the latter instance, these symptoms are transitory. Following the formation of a true stricture, the dysphagia and vomiting are constant and persistent until some kind of treatment is administered.

DIAGNOSIS

The diagnosis of acquired short esophagus should be established without difficulty. Roentgen examination of the esophagus and stomach is indispensable, and frequently it is necessary for the roentgenologist to examine the patient in the recumbent position to bring out the small sliding type of esophageal hiatal hernia. Not infrequently, the stricture at the cardioesophageal junction will exactly mimic the roentgen appearance of carcinoma of the esophagus. If the radiologist does not attempt to demonstrate the supradiaphragmatic stomach, then the correct diagnosis can be easily overlooked.

Esophagoscopic examination is even more important than the roentgen ray to establish the presence or absence of acquired short esophagus. Four of the 18 patients in this group were suspected of harboring other lesions until esophagoscopy demonstrated the true diagnosis. Olsen and Harrington[3] state the average length of the esophagus from the upper incisor teeth to the esophagogastric junction at the diaphragm is approximately 40.6 centimeters in the average normal adult. In the presence of acquired short esophagus, the cardioesophageal junction will be located at a higher level than in the normal. The esophagoscopic picture of the peptic ulceration of the esophagus is quite typical. There is intense injection of the esophageal mucous membrane immediately proximal to the cardioesophageal junction. Areas of leukoplakia taking on the contour outlines of shallow valleys between swollen folds of esophageal mucous membrane probably represent areas of concentration of the gastric juice as this liquid regurgitates into the lower esophagus in the absence of normal sphincter mechanism. Actual shallow or deep ulceration may be present. When the pathologic process has progressed to stricture formation, there remains evidence of acute esophagitis always located just proximal to the area of stricture.

Occasionally the peptic reaction at the lower end of the esophagus is so severe that one cannot be certain from the endoscopic picture whether the lesion is inflammatory or carcinomatous. In such an instance, a particular effort is made to obtain a biopsy specimen from the gastric mucosa situated just distal to the area of inflammation or stricture. The presence of gastric mucosa in the biopsy specimen may be the evidence that differentiates acquired short esophagus from suspected carcinoma.

TREATMENT

The treatment given to the group of patients here reported upon is summarized in Tables 2, 3, and 4. Table 2 shows that eight of the patients are either greatly improved or moderately improved under a regimen of occasional dilatations of the cardioesophageal junction by bougie or under esophagoscopic observation combined with rest, sleeping in the upright position and weight loss if indicated. The results in this group certainly commend trial of conservative management in the advanced cases of acquired short esophagus with stricture before any kind of surgical treatment is considered. The unimproved patient in this group has been an alcoholic problem for many years and probably would be resistant to any form of management.

Table 3 indicates that four patients received operative treatment. Two of this group had intractable vomiting (one of these patients has acrosclerosis and the other patient had had symptoms for nine years) due to severe stricture at the cardioesophageal

TABLE 2

Group I.—(Treatment comprised of esophagoscopy, one or several esophageal dilatations, bland diet, and sleeping in the upright position.)

Present Status	*No. of Patients*
Greatly improved	3
Greatly improved but dilatations still required	2
Moderately improved but dilatations still required	2
Moderately improved	1
No improvement	1
Did not respond to follow-up	2
Total	11

TABLE 3

Group II.

A. Repair of hiatus hernia with replacement of stomach below the diaphragm:	
Greatly improved	1
Moderately improved	1
B. Resection of stenotic area of the esophagus and re-anastomosis of the stomach to esophagus above the diaphragm:	
Moderately improved	2
Total	4

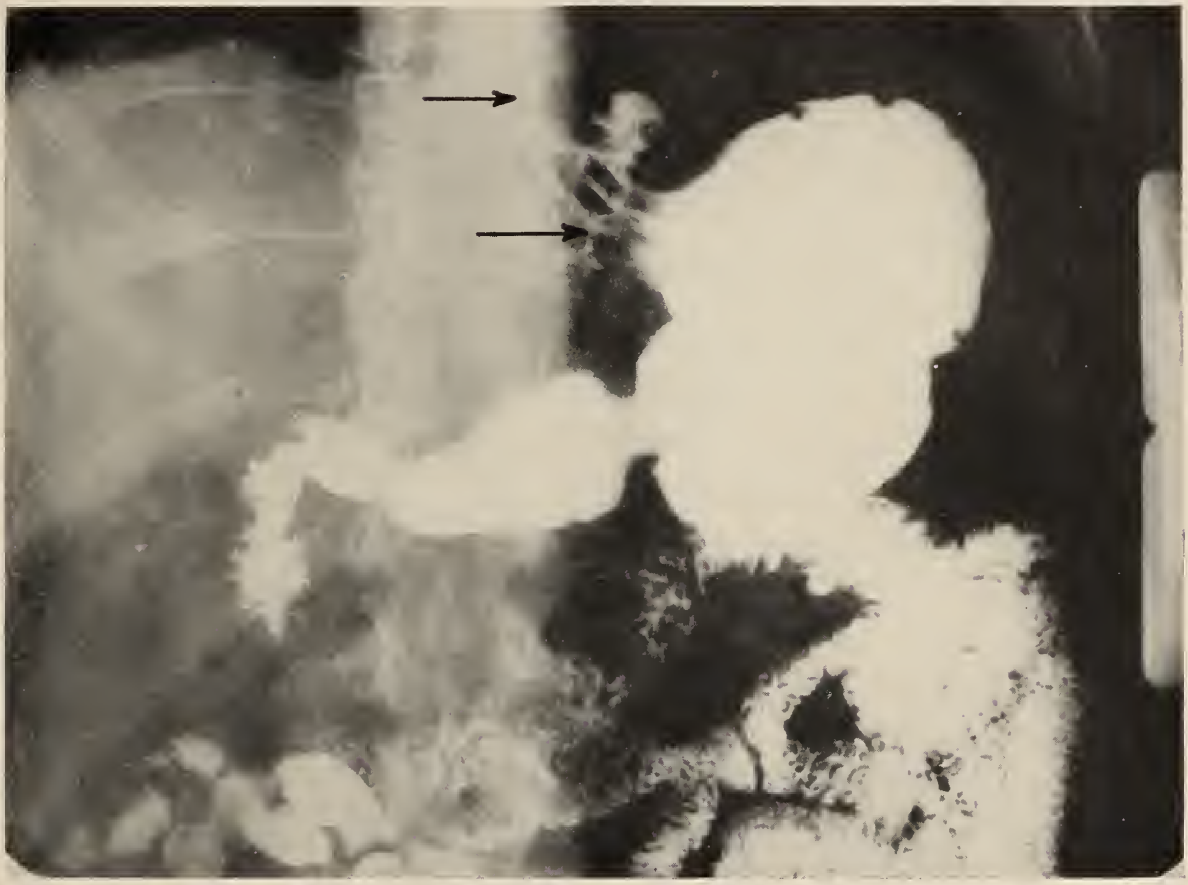

Plate II.—The two arrows demonstrate the extent of the hiatal hernia in 1941. At this stage of development, the stomach could have been replaced into the abdomen and retained there by operative repair of the hiatus. At the time of operation in 1947, the cardioesophageal junction was at the same level as seen in Plate I. It was necessary, therefore, to resect the strictured area and re-anastomose because of the distance from the diaphragm to the elevated cardioesophageal junction.

geal junction and both these patients requested operation. Resection of the strictured area of the esophagus was performed with re-anastomosis, esophagus-to-stomach, above the diaphragm.

The other two patients of this group received simple repair of the hiatal hernia through the thoracic route with replacement of the stomach below the diaphragmatic level and repair of the hiatal opening. The results in these two patients (age 49 and 61 at the time of operation) strongly suggest that surgical repair of esophageal hiatal hernia which is accompanied by early shortening of the esophagus is indicated where this condition is producing symptoms. The surgical problem is much simpler and can be more satisfactorily managed than when the cardioesophageal junction comes to occupy a position 6 to 8 centimeters above the level of the diaphragm.

Table 4 includes two patients who have died, and a third patient who is being treated outside of San Francisco. The latter patient is 53 years of age and has had symptoms for six years. A repair of the hiatal hernia was performed in 1944 with subsequent recurrence of the hernia, and the esophagus is now considerably strictured and there is a questionable ulcer in the supradiaphragmatic portion of the stomach. Experience with this patient illustrates the fact that when the cardioesophageal junction is several centimeters above the diaphragm, it is difficult to prevent recurrences in this type of hernioplasty.

When radical resection is necessary, the operations of partial esophagectomy combined with esophagoenterostomy as recommended by Allison[2] or three-quarter gastric resection as recommended recently by Wangensteen[4] are probably better surgical

TABLE 4

Group III.

A. One patient has a jejunostomy and is being prepared for esophageal resection. (This patient had a repair of her hiatus hernia in 1944 with recurrence of the hernia.)

B. One patient died in an emaciated state at the age of 82, 1½ years after first visit. Necropsy revealed ulcers at the cardioesophageal junction, lesser curvature of the stomach and duodenum. Rupture of the lesser curvature ulcer caused patient's death.

C. One patient died at the age of 82. Observed and treated for 7 years. Emaciated at time of death. In addition, had benign prostatic hypertrophy with secondary bilateral pyelonephritis.

Total	3

procedures than resection of the strictured area with re-anastomosis, esophagus-to-stomach, since in the latter operation the acid factor has not been eliminated.

The two patients who died each lived to be 82 years of age. One of these patients was observed for eight years and he would come in occasionally for an esophageal dilatation. Although this patient was emaciated at the time of death, the immediate cause of death was the presence of benign prostate hypertrophy with bilateral pyelonephritis. The other patient died in an extreme degree of emaciation. Peptic ulceration was present at the cardioesophageal junction, in the lesser curvature of the stomach and in the duodenum. The immediate cause of death in this patient was an intraperitoneal rupture of the gastric ulcer.

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Experience with Vitamin E in Coronary Disease

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SUMMARY

Fifty-four patients with various classifications of angina pectoris were treated with vitamin E in a study to evaluate the effectiveness of the substance in such conditions.

The incidence of improvement among patients in the series was no greater than it was in a control group not given vitamin E. As to subjective evidence of relief, there was no significant difference as between patients given vitamin E and those given placebos. When some of the patients being treated with vitamin E were given placebos, instead, for a period during the course of observation, subjective improvement was not diminished.

No specific benefits attributable to vitamin E therapy could be shown.

SINCE 1946 there has been considerable interest shown by both laymen and physicians in the use of vitamin E for the treatment of various forms of heart disease. This treatment was brought to the attention of laymen primarily by an article in a magazine of nationwide circulation reporting pronounced benefit to patients with various kinds of heart disease when this vitamin was used. As there were no published studies in scientific journals available, the author wrote to the group at London, Ontario, and received a reply that results had been very favorable with vitamin E in several kinds of heart disease and that apparently it gave prompt relief to patients with angina pectoris. It was stated that the dosage used was an average of 300 mg. per day.

Review of several studies of the use of vitamin E in large dosage disclosed no evidence to suggest serious side-effects or toxic manifestations. Unpublished information from one of the western clinics where large doses of vitamin E had been given to patients with certain fibrous tissue contractions warned of possible kidney damage. In well controlled observations of two patients, increased cast counts in the urine were noted when large dosage was used. The author has been unable to substantiate that observation.

Vitamin E therapy for a group of patients who had angina pectoris was started early in 1946. At that time an attempt was made to review the literature for a physiological explanation of the results that had been previously reported.

Extensive information has been obtained regarding the chemical and physiological properties but as yet the story remains full of gaps as regards the function of vitamin E, particularly in man. Apparently there has been enough evidence for acceptance of the premise that vitamin E is of help in muscle metabolism and is a factor in determining the ability of muscle to carry on its work with proper oxidation.[5, 7, 9] There has also been evidence that vitamin E may improve the blood supply, particularly capillary supply of the tissues. Vitamin E may affect the enzyme system in such a way as to improve muscular function. However, there has been a wide variation in the effects noted in use of the drug in various experimental animals, and there have been no careful studies carried out on man. As all green plants contain this vitamin in some measure, it seems doubtful that a deficiency of it would occur in man. There has been no work with which the author is familiar to indicate a "vitamin E deficiency syndrome" in man. There have been many experimental studies carried out in animals and the effects have been rather diverse and complex. The literature[4, 5, 7, 8, 9] contains reports of the following phenomena that were noted in various experimental animals (all animals do not respond the same) when kept in a vitamin E deficiency state:

1. Reduced fertility.
2. Neuromalacia.
3. Edema.
4. Muscular dystrophy.
5. Pigment deposit.
6. Peripheral vascular damage.
7. Deposition of tartar.
8. Stability of intestinal fats.
9. Association with phosphorus metabolism.
10. Impaired utilization of oxygen.
11. Vascular abnormalities including: (a) venous stasis and distention, (b) venous thrombosis, (c) venule rupture with hemorrhage.
12. Heart changes (in cattle and rabbits).

Apparently all animals do not show anatomical changes in heart muscle with vitamin E deficiency. Gullickson and Calverley[4] demonstrated electrocardiographic changes in cattle, and Houchin and Smith[5] showed pathological changes in the heart muscle of rabbits with vitamin E deficiency.

As it would seem that vitamin E deficiency would be rare in man, it must be concluded that any bene-

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Presented as part of a symposium on Heart Disorders arranged jointly by the Section on General Medicine and the Medical Division of the California Heart Association at the 78th Annual Session of the California Medical Association, Los Angeles, May 8-11, 1949.

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From Division of Cardiology, Department of Medicine, University of Oregon Medical School.

ficial effect from vitamin E must be the effect of this substance as a drug, per se.

It is interesting to note that vitamin E therapy has been reported to be of value in the following conditions: Indolent ulcers of the extremities, arteriosclerotic gangrene, thrombophlebitis, phlebothrombosis, thromboangiitis obliterans, fibrositis, myositis, cerebral thrombosis, neuromuscular dystrophies, degenerative cerebral spinal lesions, nephritis, purpura, visual disturbances, chronic infections, and heart disease.

Reports by Vogelsang, Shute and Shute[10, 11, 12] indicated that vitamin E had been helpful in a large percentage of cases of hypertensive heart disease and rheumatic heart disease, in many cases of arrhythmia and in approximately 96 per cent of cases of angina pectoris. From a report by these observers on one series of 84 consecutive patients, it would appear that 43 showed pronounced improvement, 33 partial improvement, seven slight or no improvement, and one died.[12]

Other medical groups became interested and gave patients vitamin E. Ravin and Katz[8] reported on 11 patients, whose exercise was carefully controlled in accord with tolerance. For ten of them, no subjective or objective change was noted during the course of treatment with vitamin E (from four to 24 weeks). One showed slight improvement. Makinson, Oleesky and Stone[6] reported on a series of 22 patients with typical angina of effort, and concluded that vitamin E was not of any therapeutic value in the routine treatment of angina pectoris. Baer, Heine and Gelfond,[1] reporting on a series of five patients with angina pectoris, stated that the majority were not appreciably helped by vitamin E. They further concluded that their results were not encouraging enough to recommend use of the vitamin in the treatment of angina pectoris. Gram and Schmidt[3] stated that they gave vitamin E to 80 patients with arteriosclerotic heart disease. Five showed definite improvement, 12 subjective improvement. Gram and Schmidt concluded that if improvement was due to vitamin E it must be assumed to depend upon the improvement in the condition of the blood vessels. Donegan[2] and co-workers reported on a series of patients with heart disease (including seven with angina pectoris) who were treated with vitamin E. An increase in exercise tolerance was demonstrated in one patient while he was receiving the therapy. The same improvement was shown in a control patient who was given placebos. Other patients either became worse or had no subjective or objective change.

In a group of patients treated by the author the following procedure was used: From each patient a careful history was taken and each patient was given a thorough physical examination. A routine x-ray examination of the heart and chest was made. Electrocardiograms were made before any therapy was started and were repeated periodically during the course of treatment. Subjective symptoms were tabulated and evaluated primarily by the patient. The evaluation of subjective symptoms becomes exceedingly difficult with ambulatory patients who are not kept under rigid control. An attempt was made to use a standard exercise tolerance test but this proved to be impractical because so much depended upon when and what the patient had eaten previously, how fatigued he was prior to the office visit, how much worry or emotional strain he was under at the time of the visit, and how well he rested the night before, as well as upon how enthusiastic the observer might be at the time of observation. Because these factors could not be controlled in the ambulatory office patient it was felt best and most accurate to allow each to carry on his ordinary mode of living. An attempt was made to obtain from each patient his general feeling with regard to frequency and severity of pain, sense of well-being, and endurance. (In analyzing the symptom of pain, one must keep in mind the variations of threshold and what may change it.)

The patients in this series received 300 mg. daily of vitamin E[*] for at least three months and many for over 26 months. It was given orally in three equal daily doses.

This report includes observations of 54 patients, who are divided into the following groups:

Group A. Twelve patients who had angina of effort but in whom no objective indications of heart disease were found.

Group B. Twenty patients who had angina of effort and who showed some positive objective signs of heart disease, diagnosed as coronary sclerosis.

Group C. Twenty-two patients who had had myocardial infarctions and who, at the time they were started on vitamin E therapy, had angina pectoris as a residual symptom. The diagnosis of myocardial infarction was made when there was evidence of clinical history of heart disease, change in leukocyte count, change in sedimentation rate, changes in heart tones (distant, friction rubs, etc.), and characteristic changes in the electrocardiogram.

The following tabulation indicates beneficial changes that occurred in this group.

		Improvements Noted			
	No. Patients	On Physical Examination	In X-ray	In ECG	Subjective
Group A	12	0	0	0	3
Group B	20	0	0	0	2
Group C	22	0	1[†]	3	2

An attempt was made to evaluate the subjective improvements noted. In order to evaluate the possible emotional or psychic factors, placebos were used on two patients in each group.

	No. Patients	Placebo Time	Change in symptoms
Group A	2	1 month	No change when switched
Group B	2	1 month	No change when switched
Group C	2	1 month	No change when switched

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[*] The majority of the patients in this series received ephynal acetate which was furnished by Hoffman-La-Roche.

[†] This patient had pernicious anemia and the heart size decreased as the hemoglobin content of the blood improved. He had two attacks of myocardial infarction while on vitamin E therapy.

It will be noted that in three of the patients a return toward normal was noted in the electrocardiogram. This can occur in any group of patients with coronary artery disease.

To obtain more definite information as to how frequently this might occur, 20 case histories of coronary artery disease were reviewed. The patients had received no vitamin E therapy at any time. In this group were included only patients who would fall in groups B and C, as it is obvious that patients in group A would give entirely negative findings. The results of this survey are tabulated:

	Improvements Noted			
No. Cases	On Physical Examination	In X-ray	In ECG	In Symptoms
20	0	0	3	4

It will be noted that seven (13 per cent) of the patients given vitamin E were symptomatically better at the end of the observation period. In the control group, four (20 per cent) showed improvement at the end of a similar period. The electrocardiograms showed a change toward normal in three (5.5 per cent) of the 54 patients given vitamin E. A similar change was noted in three (15 per cent) of the control group. The x-ray findings showed no definite change in either group, which was to be expected as none of the patients in either group had symptoms of heart failure. In the group given vitamin E there was a decrease in the cardiac shadow in one patient, but this occurred concomitantly with improvement in anemia.

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Alcoholism: The Role of Psychiatry in Meeting the Problem

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SUMMARY

The extensive devastation resulting from excessive ingestion of alcoholic beverages is not widely recognized. Brief statistics indicate the extent of alcoholic beverage production and consumption, of the consumer outlay for products, and of losses in wages and the cost of increased illness incident to excessive drinking. Also indicated are the cost of law enforcement requirements coincident with drunkenness, and the factor of drinking in accidents and charitable care.

Some of the sociologic and economic effects are recognized by agencies involved in the problem of alcoholism, but the extensive involvement of the personality of the addict and of his family and associates, the most devastating effect of all, is inestimable. Coordination of reorganized facilities is necessary to improve the situation. As the entire problem basically involves the personality, psychiatric principles need to be applied by means of studied recommendations and advice to coordinated groups making efforts to meet this extensive problem and to assist the alcoholic addict.

THE amount of production and consumption of alcoholic beverages and the devastating effects of them, economically and socially in the community, and physically and mentally upon the individual, are not generally recognized.

EXTENT OF ALCOHOLIC BEVERAGE PRODUCTION AND CONSUMPTION

The United States Department of Commerce[17] estimated the total cost of alcoholic beverages purchased by the people of the United States in 1940 at $3,595,000,000, which is equal to $27 per capita for the resident population of 131,669,275 that year. The average outlay for the estimated 44,000,000 users was about $81. In 1934, 2,300,000,000 was spent for alcoholic beverages, and in 1943 $6,830,000,000.

The United States Department of Commerce[17] estimates 4.9 per cent or 8.8 billion dollars of the present national income is spent on alcoholic beverages. For comparison: 3.4 per cent (6 billion dollars) was spent in horse race betting, 1.9 per cent (3.4 billion) for tobacco and cigarettes, 0.85 per cent (1.5 billion) was given to religious and social welfare and 10.5 per cent (18.7 billion) was paid as individual United States income taxes. Public education requires 3.3 per cent of the national income, about two-thirds of the amount spent for alcoholic beverages.

Statistics from the California Wine Institute[3] indicate that the capital investment in all branches of the alcoholic beverage industry in California exceeds a billion dollars, its total payroll approaches a half billion dollars a year, and that annual taxes of all types paid by the industry are well in excess of a quarter of a billion dollars.

WAGE LOSSES AND LAW ENFORCEMENT STATISTICS OF INEBRIETY

For 1940, loss of earnings in the United States attributable to drinking was estimated to be one and one-half billion dollars greater than the loss of earnings caused by all other illnesses. It is estimated that the daily average number of persons held in the county and local jails for drunkenness is 70,000. Assuming a potential wage loss of $1,116 for each,[11] this amounts to $78,120,000. The National Safety Council[14] estimated that the annual wage loss of persons involved in accidents caused by drunkenness is $1,800,000. The Safety Council also reported that in 20 per cent of the fatal accidents in 1940 involving vehicles or vehicles and pedestrians, either the driver or the pedestrian had been drinking. Statistics indicate inebriety may be a contributory factor in 18 per cent of the community cost of charity care.

The annual statistical report of the Department of the California Highway Patrol for 1947[2] indicates that of pedestrians and drivers involved in traffic accidents, 12,331 had been drinking. The Los Angeles County Jail bookings for the year 1947-48 numbered 39,795, of which 9,114 were for drunkenness, 2,201 for drunken driving, and 81 for liquor law violations. Of 11,926 total arrests for all causes in 1947 by the Los Angeles City police department,[4] 1,074 were for drunken driving. Total traffic violations numbered 10,610. Of this number 612 were by persons under the influence of alcohol. In 69 of 223 fatal motor vehicle accidents the driver had been drinking. Arrests for drunkenness by the Los Angeles City police department gradually but progressively mounted from 3,350 in 1920

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when the population was 576,673 (0.6 per cent), to 53,294 in 1941 with a population of 1,554,000 (3.4 per cent), and to 98,149 in 1947 when the population reached 1,904,725 (5.2 per cent).

A Federal Bureau of Investigation study[5] in 1940 of 1,212 cities with a total population of 41,146,894 indicated that of all arrests, 11.81 per cent were for drunkenness, 3 per cent for disorderly conduct, 1.68 per cent for vagrancy, and 0.76 per cent for driving while drunk. The investigators estimated that incarceration of persons arrested for drunkenness cost 70 per cent ($25,550,000) of the expense of 3,000 county and local jails.

INCIDENCE OF DRINKERS

In 1940 about 2,400,000 excessive drinkers were reported in the United States,[11] of whom 600,000 were chronic alcoholics. It is estimated that the expenditures in that year for treatment of bodily disease in excessive drinkers were one-third higher than the average ($23). For these 2,400,000 persons, then, the excess over the normally expected cost of illness is $18,480,000.

There are now about 100 million people in the United States of drinking age (over 15); of these, about 50 million use alcoholic beverages—3,000,000 become excessive and compulsive drinkers, including 750,000 chronic alcoholics. In other words, of 1,000 users, 60 become excessive and compulsive drinkers and one-fourth of this group, or 15, become chronic alcoholics.

EFFORTS TO COMBAT EFFECTS OF ALCOHOLISM

The sociologic effects of alcoholism are superficially recognized in general, and specifically in individuals coming to the attention of various interested groups, but the extent of involvement of our social structure is not widely or seriously recognized. Numerous organizations—law enforcement agencies, mental hygiene councils, religious bodies, Alcoholics Anonymous, and many interested social groups extend specific efforts to meet the problem of alcoholism and to assist the addict. But the work done by such organizations, although extensive, is not well enough coordinated to achieve maximum results in dealing with so great and so complex a problem.

All states and communities have legal control of the alcoholic beverage industry and sale of the product, and law enforcement agencies attempt to properly apply numerous laws and ordinances, though with little desirable effect upon the basic problem of alcoholism.

Many plans and organizational meetings direct efforts toward better coordination of agencies involved in correction of the problem, with increasing promise of better procedures. The Governor of California called a large number of representative citizens to meet in Sacramento, March 3-4, 1949, for consideration of this problem and other mental hygiene problems. Throughout the country efforts are being made in the direction of proper consideration of alcoholism in general and the study and treatment of the individual addict—work such as that being done by the Yale Plan Clinics,[8] and by the National Committee for Education on Alcoholism. The New Jersey State Legislature[9] in 1947 enacted a law placing the treatment of alcoholics under the supervision of the State Department of Health. Provision was made for hospitalization of addicts and research on the problem, the costs to be borne by the state from allocated funds. Plans were proposed in Massachusetts, Connecticut and Indiana in 1945 to allocate a part of the revenue from alcoholic beverage taxes for the treatment of alcoholics and for research on alcoholism. Aside from these recent efforts of these states, however, the state and the public have a socially irresponsible attitude toward the serious questions which must be faced with regard to the problem of alcoholism.

Obviously, increased dissemination of knowledge for the physician as well as the layman is indicated. Recommendations for meeting many phases of the problem have been offered in numerous sociologic, economic, educational and particularly psychiatric presentations, but lack of coordinated effort and available legal authority have limited desirable results.

A recent study of the problem and recommendations for treatment of it were made at the request of the Council of the California Medical Association. The recommendations included:

1. Dissemination of knowledge concerning the subject to the membership of the California Medical Association.

2. Allocation of a minimum of 2 per cent to 6 per cent of beds (the percentage depending upon the size of the hospital) in public and private hospitals for the treatment of acute alcoholism.

3. Establishment and maintenance of diagnostic and treatment centers in the larger areas of population.

4. Follow-up supervision, including vocational training and arrangements for legal retention on convalescent farms or other organized facilities, with correlated liaison and assistance of established community groups of the various religious, social welfare, court and police agencies.

5. A broad educational program for physicians and psychiatrists; training programs for auxiliary medical personnel, for attendants in hospitals, on rehabilitation farms and in convalescent units; in-service instruction on-the-job for law enforcement workers and jail attendants. Educational information for the public should be widely disseminated through the public press, supervised lecture courses, cinema films and other available facilities.

6. An extensive active research program into the various phases of the problem of alcoholism, including investigations in biochemistry and physiology as well as studies in the sociology and statistics of alcoholism.

7. Establishment of a new Division of Alcoholism within the State Department of Mental Hygiene, this division to be the central planning and coordination agency within the state. In order to insure

wide representation it was recommended that the Governor appoint an advisory council, the council to include as ex-officio members the directors of the Department of Mental Hygiene, of the California Youth Authority, of the California Adult Authority, representatives of Public Health and Social Welfare Departments and at least five additional members from among candidates recommended by other interested agencies such as the California Medical Association and law enforcement, hospital and social agencies. Construction of two hospitals under direction of the State Department of Mental Hygiene in close working relationship with the two state medical schools was recommended, and a further recommendation was that counties should assume the responsibility for the development of programs and facilities to care for alcoholics, coordinating councils at the county level to be formed for this purpose.

The California State Department of Health, the California Medical Association, the State Crime Commission and numerous other agencies are coordinating efforts and are drawing plans for presentation of recommendations to the State Legislature in better meeting this problem in California. Their combined efforts, with the desires of the Governor and the legislature to improve the situation, promise desirable results.

MEDICAL TREATMENT OF THE INDIVIDUAL ADDICT

Medically, the general physiologic effects of alcohol are commonly known, although the extent of resulting devastating neuropathologic, encephalopathologic and other organic involvement is not generally recognized, even by the medical profession.

Alcoholics who are hospitalized during acute intoxication are well treated for the immediate condition, but those who are not hospitalized are seldom efficiently treated. Several effectual treatment methods[15] are applicable in the acute debauch but a very small percentage of drinkers receive the indicated follow-up supervision sufficiently long for desirable or consistent treatment of the basic personality defect which has caused the acute debauch. Accepted treatment of the chronic alcoholic includes the widely applied aversion treatment (the so-called conditioned reflex treatment[18]) which results in a fair percentage of good results if followed by continued supervision and psychotherapy.

Martensen-Larsen[13] of Copenhagen described the treatment of chronic alcoholism with the sensitizing drug, tetraethylthiruamdisulfide (Antabuse®).

Eighty-three patients were treated, 74 with improvement. No harmful systemic effects on liver, heart, kidney, or blood-forming organs were noted and there were no untoward side-effects.

A later report by Jacobsen and Martensen-Larsen[7] reviews the clinical results on 100 persons with alcoholism who were treated six to 12 months with Antabuse. This report emphasized the need for concomitant psychotherapy.

Hald and Jacobsen[6] reported the characteristic symptoms in individuals who drink even small amounts of alcohol after administration of the otherwise inert dose of 0.5 to 1.5 gm. of Antabuse. They noted facial flushing, dilation of the scleral vessels, increased pulse rate and, later, palpitation and occasionally slight dyspnea. After larger doses of alcohol, nausea and vomiting often developed, and, if nausea was intense, pallor. The symptoms are explained by an increased formation of acetaldehyde after the taking of alcohol by people treated with Antabuse, the blood acetaldehyde rising two to five times that in normal people who have taken the same dose of alcohol without prior dosage of Antabuse.

Zabriski,[19] as chairman of the newly formed Committee for Research on Medical Treatment of Alcoholic Patients, is developing plans for investigation of this drug. He suggests that improper use of the drug may prove detrimental to the development of a sound treatment which would benefit thousands of alcoholics. Zabriski said that research studies by Brieger* indicated need for further investigation before it is known whether this drug is safe to use. Zabriski said that it is effective in stopping alcohol intake but must be followed by intense psychotherapy.

IMPLICATIONS OF PSYCHIATRY IN THE PROBLEM

The entire problem of alcoholism must be psychiatrically oriented, as it basically and universally involves the personality of the individual.

Strecker and Ebaugh[16] have expressed the belief that chronic alcoholism is a manifestation of psychoneurosis. Predominantly, according to these observers, the psychoneurosis involved is that of the introvert, the shy, reserved, diffident individual who tends to be socially awkward. Alcohol is used to escape reality, just as other psychoneurotic symptoms unconsciously are employed for the same purpose. Strecker and Ebaugh pointed out that a large amount of rationalization is manifested both in psychoneuroses and in alcoholism.

The basis of alcoholism, as in the psychoneuroses, is emotional immaturity. Those who cannot face reality without alcohol, who take morning drinks and drink alone, who cannot control their excessive drinking, are chronic alcoholics, and they cannot make adequate adjustment to reality as long as they use alcohol. Many individuals drink in reaction to or as an escape from environmental situations without evidence of any deep-seated personality disorder.

In other persons, alcoholism exists as one manifestation of the behavior difficulties encountered in organic or functional psychoses. Psychoneurosis often seems to be the etiologic factor in the alcoholic habit, many using alcohol for relief of anxiety and tensions accompanying the disorder, and in some the alcoholism itself is the prominent manifestation of the neurosis. In many cases of alcoholism no etiologic factor is determined, the basic psychopathologic condition often being obscured by the toxic effects of the alcohol as it acts as a direct poison to the cortical cells.

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*H. Brieger, associate professor, Department of Preventive Medicine, Jefferson Medical School.

Frequently even an academically untrained observer who is in close association with an addict to alcohol will note personality defects, undesirable traits in other fields, emotional instability and often evidences of immaturity, irresponsibility and unreliability. Attempts to estimate contributory etiologic factors in development of the habit, however, require the most diligent study, application of wide knowledge, great acumen and long experience in order to plan the indicated treatment regimen for the individual. Because lack of trained therapists makes it impossible to apply such time-consuming procedures in more than a comparatively few cases, other methods must be devised for more general and universal application of psychiatric principles to the large number requiring attention.

The main efforts for application of psychiatric knowledge must be in the direction of educational procedures, in supervision of hospital, diagnostic and rehabilitation services and in recommendations to coordinated law enforcement, legislative, religious and social groups. Educational courses are needed for young psychiatrists and for physicians in all specialties, for psychiatric, general, and visiting nurses, technicians, and other auxiliary medical personnel, and for law enforcement and hospital personnel. There is need for wide dissemination of information to the public, particularly to the adolescent and young school age groups where greatest results may be anticipated.

What little has been done to apply corrective measures for alcoholism has been directed at the far end of the process, namely, at the patient after alcoholism is well established. As with other problems of disease prevention, the point of attack should be at the causes, or at least the beginning of the process. A broad, carefully planned and continuous public educational program is initially obligatory, but this course should be supplemented by organized state and community effort to treat persons in the incipient stages of alcoholism and to apply medical, social and psychiatric measures at this critical point.

Despite these efforts, some drinkers will become addicts. More readily available general hospital facilities will be required for them. Meanwhile, stimulus must be given to research and extensive investigation into new and better ways and means of fuller treatment of the entire problem. In California definite research into the physiologic, biochemical, medical, psychiatric, sociologic and statistical phases of the problem should be implemented by the state medical schools under the Department of Mental Hygiene as a coordinating agency.

Considering the most important factor in alcoholism to be a personality disturbance, it is most appropriate that the Department of Mental Hygiene act in a supervisional coordinating capacity to insure continuance of indicated plans and projects. In the coordination and use of all involved community agencies—social, law enforcement, judicial, medical and hospital—it is imperative that psychiatrists offer their trained aid in advice and recommendations, in the educational and training programs and in psychiatric implications of this complex problem.

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Laryngeal Granulomata Following Intratracheal Anesthesia

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SUMMARY

Laryngeal granulomata are a not infrequent complication of intratracheal anesthesia.

The lesions develop as a result of laryngeal trauma, are almost always posterior, are frequently bilateral, and are more likely to occur as a result of pernasal blind tracheal catheterization.

They may take two to four months to develop and are to be suspected in any instance of postoperative vocal disturbance.

The treatment of choice is removal under direct laryngoscopy.

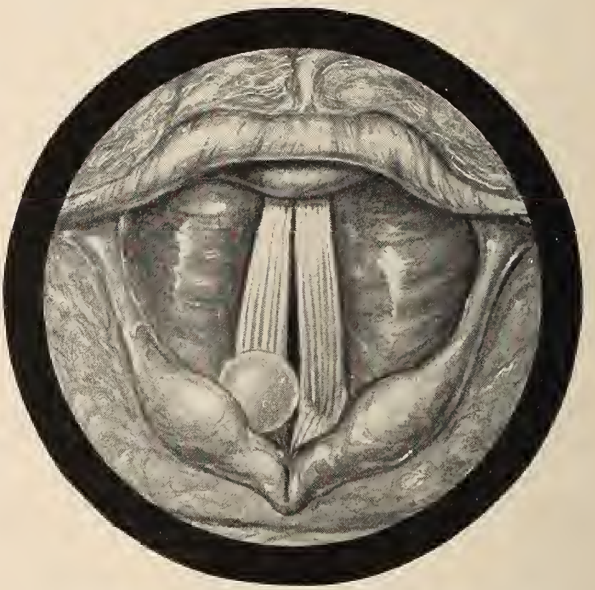
As well as solving questions of great importance, advances in medicine introduce new problems to the physician. Such is the case with the complications of laryngeal granulomata following intratracheal anesthesia. This technique of anesthesia has been developed to a high degree of efficiency during the past 20 years and, together with surgical teamwork, antibiotic agents, better understanding of cardiopulmonary physiology and blood replacement therapy, has widened the scope of thoracic and head and neck operations so that many lesions which were previously inoperable can now be treated surgically with a reasonable degree of ease and success. The value of a controlled airway, the ability to administer oxygen and respiratory anesthetics at will, and the abolition of the consequences of laryngospasm cannot be overemphasized. Notwithstanding the tremendous advantage and safety of this form of anesthesia, complications are occasionally met with, the major one being postoperative laryngeal granulomata.

The first report of such a disorder appeared in 1932,[2] and since then there have been additional reports in the British and American literatures.[1, 3, 4, 5, 7, 8, 9, 10] The most recent article is by Hill,[6] who added the eleventh reported case. Considering the vast number of intratracheal anesthesias which have been administered it would seem that the incidence of this complication is very low. Although the authors can relate complete reports of only two cases, there are several others in which the records were not obtainable, and still quite a few others which the authors have heard about but which have not been published. It is felt that the incidence is considerably greater than the number of cases reported in the literature would seem to indicate.

ETIOLOGY AND PATHOLOGY

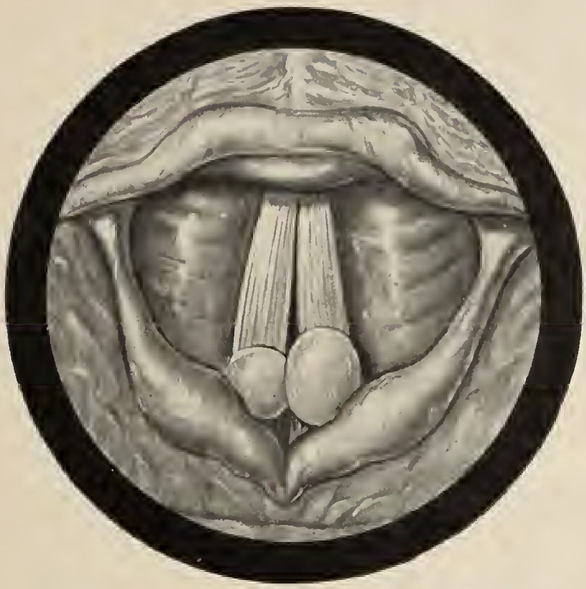
Trauma to the laryngeal mucous membrane, during intubation or during the time the tube is in place, is responsible for the chain of events which leads to proliferating granuloma. In each of the two cases on which the authors have complete records, and in at least one of the reported cases,[3] granulomata resulted after pernasal tracheal intubation, suggesting that perhaps trauma at the time of blind catheterization of the trachea was responsible. In all probability the initial lesion may be either an ulceration of the mucous membrane or subepithelial hemorrhage due to trauma. In either instance a focus of irritation is established which may ultimately develop into a soft, fleshy, more or less pedunculated polypoid mass. More often than not the lesions are bilateral, the favorite site of attachment of the granulomata being at or near the vocal process of the arytenoid cartilage.

In such a location the symptom of hoarseness may not develop until the "tumors" have reached considerable size, perhaps 1 to 1¼ cm. in diameter. Histologically the granulomata are covered with stratified squamous epithelium, underneath which is a stroma of fibrous tissue and chronic inflammatory cells. The stroma may be vascularized to the point that the "tumors" closely resemble hemangioma.



Unilateral granuloma attached to the vocal process of the right arytenoid cartilage, three months following intratracheal anesthesia.

Presented before the Section on Anesthesiology at the 78th Annual Session of the California Medical Association, Los Angeles, May 8-11, 1949.



Bilateral granulomata two and one-half months following intratracheal anesthesia.

Although it takes some weeks for the well formed polypoid granulomata to appear, hoarseness or vocal disturbance of any kind following operation should suggest laryngeal trauma and should call for laryngeal examination. Vocal complaints may not develop for from two to four months after operation, at which time the "tumors," especially if bilateral, may have reached such a size as to cause dyspnea. Indirect laryngoscopy will in most instances establish the clinical diagnosis. However, direct laryngoscopy should be resorted to if the indirect method is for any reason unsatisfactory. Removal with a suitable forceps under direct laryngoscopy is the treatment of choice. It can be done with ease under preoperative sedation and topical local anesthesia. Recurrence of granulomata after careful removal is infrequent, but repeated removals may be necessary, especially if the lesions are sessile.

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Discussion by JOHN WM. SHUMAN, JR., M.D., *Los Angeles*

The advantages of endotracheal airways are appreciated. Even though the use of such foreign materials is always associated with some morbidity the complication under discussion must be a rare one. Since the value of a laryngeal prop far outweighs its hazards, search for remedies could be aimed at locking the proverbial barn.

The introduction of contaminated material from the nasopharynx may be a reason for the higher incidence of complications when a nasal approach is employed. Mechanically, this route is more difficult since frequent proddings may be necessary before entry is effected.

While infection may play a part in the oral intubation of the trachea, the direct view afforded by the laryngoscope makes it possible to literally pry apart the vocal cords with force. Except as a lifesaving measure, this can only mean improper anesthesia. As Dr. Lundy of the Mayo Clinic has often said to his students, "If you have to use force in endotracheal intubation, you are doing it incorrectly." The hurried approach with inadequate anesthesia will result in the appearance of a bloody tube.

The selection of a properly fitting catheter is of importance for an adequate seal, but the use of a suitable lubricant can play a major role in the minimizing of tracheal irritation and morbidity. The urologists and gynecologists prefer a bland water-soluble medium for their instrumentation, yet many anesthetists persist in spoiling rubber catheters by using a petroleum product such as vaseline or mineral oil. This foreign substance must be a source of irritation to the tracheal mucosa as it is elsewhere in the body. An additional hazard is added when a topical anesthetic agent is included with the lubricant. This measure may be justified in selected procedures. In my experience, the use of plain water-soluble material produces the least morbidity and causes less deterioration in the catheter or balloons, many of which last for two or three years.

The incidence of pressure necrosis caused by inflatable cuffs should be considered in this discussion, since there is a wide variation in the balloons employed. It has always been the belief of Dr. A. E. Guedel* that a soft, preformed balloon of the low pressure type would cause less injury than the thick-walled, high-pressure variety made of latex tubing. While statistics are not available for comparison, it would seem likely that contact with a soft balloon would produce less ischemia of the laryngeal mucosa. This factor could be of more importance during anesthesia of several hours' duration.

The introduction of irritating liquids or vapors in high concentration through the endotracheal tube should only happen with the novice. Dry gases, however, may be inhaled without the benefit of added warmth and moisture as would occur normally when they pass through the nasopharynx. This may be another factor in the problem. The drying effect is accentuated by routine use of a belladonna derivative.

The combination of dryness, infection and mechanical injury makes an excellent field for ulcer formation and possible granulomata. The elimination of these factors must be part of the answer in the prevention of postendotracheal laryngeal granulomata.

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*Personal conversations.

The Clinical Usefulness of the Vaginal Smear

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SUMMARY

The chief value of the vaginal smear is as a simple, rapid means of accelerating the diagnosis of cancer in those cases in which the presenting symptoms or lesions are not sufficiently alarming to provoke immediate surgical investigation.

Carcinoma of the endocervix, carcinoma in situ, and carcinoma existing together with inflammatory and scarifying lesions are most likely to be discovered by the method. The very early ulcerative malignancy, before the fibrous proliferative reaction produces the classical raised edge and granular base, also has been detected on the smear taken just before the cautery was applied. The small nubbin without ulceration also yields malignant cells. These lesions almost always include the surface epithelium.

The positive smear has induced the immediate repetition of biopsy or curettage when the first sections have not confirmed a clinical suspicion. It can prevent temporizing when there is an easy explanation (such as estrogen administration or menopausal irregularity) for spotting and metrorrhagia. Examination of smears has corrected a number of false impressions caused by poor visualization.

The smear method is irreplaceable for the early diagnosis of recurrence after radiation. Salvage of the patient is rarely to be expected from such a discovery, but planning of palliative therapy is greatly aided.

THE rationale for cancer detection based upon vaginal smears depends upon the fact that epidermoid cancer sheds superficial cells in numbers far out of proportion to the size of the tumor. This tendency to exfoliate from the surface is not at all dependent upon the presence of ulceration; it is probably due to a biological property of cancer cells themselves. Cancer cells in tissue culture, for instance, have been observed to "break off" from the main clump and "metastasize" to other parts of the culture medium with greater ease than normal cells.

In essence the discovery of Papanicolaou and Traut was the demonstration of the frequency with which such cells appear, making possible their detection in a very small aliquot of the total vaginal exudate. The other thing these investigators demonstrated was that many malignant cells in isolated spread are sufficiently distinctive to make possible a strong presumption or certainty of their nature. It was shown that a great deal might be learned and that benefits to patients might accrue because by this approach genital carcinoma might be discovered early, whereas formerly there was only the random biopsy applicable in obvious lesions to demonstrate their character. From the outset Papanicolaou and Traut have emphasized that the effectiveness of this method depended upon examination of the smear by an experienced observer and substantiation by biopsy methods.

There are several reasons for this somewhat surprising reliability of certain diagnostic hallmarks in isolated malignant cells. One is that the very severe shrinking and wrinkling caused by suspension of tissue in a fixative is avoided. On smears the cells are spread out and flattened and frequently cover a greater area than they do even in situ. This can be easily demonstrated by examining fresh teased preparations in saline. The greater detail that can be seen is startling—not quite as much as is seen in dry smears of sternal marrow, for instance, but much more than can be seen even after fixation in solutions especially designed to minimize shrinkage, such as Zenker's. As a result, irregularity of nuclear outline is much more dependable as a criterion of malignancy in smears than in sections. Another unexpected advantage of smear staining is the very remarkable constancy of hematoxylin uptake by the nuclei. The variability of hematoxylin staining in sections seems to be partly due to the fact that when a large number of cells are crowded together, especially if the nuclei are closely approximated, the excess hematoxylin is mechanically hindered from diffusing out into the acid differentiating solution. The author has found it entirely unnecessary to control differentiation visually, as is done with section staining. The result of this constancy of staining is that the appearance of hyperchromatism is a much more valuable characteristic of isolated malignant cells than it is in sections.

By repeatedly looking at corresponding smears and sections, it eventually becomes easy to envision how cells in the one would look in the other. After two years of studying comparative material, the author is convinced of the value of having a smear as an aid in making a diagnosis if section examination is equivocal. This is not meant to violate the very proper practice of employing the biopsy as the yardstick whereby the reliability of the smear is measured. Nor does it mean that the biopsy need not determine the diagnosis. That the smear is not

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a substitute for biopsy has been emphasized by all observers, and it is to be hoped there is no more misunderstanding on that score. However, it is true that, as the examiner gains experience and confidence, there are some cells which are so distinctive and familiar to him that no number of negative biopsies would shake his belief in the presence of cancer. Learning about such cells is a subjective and individual matter and depends upon how much material has been examined. There is another large group of cells which are not diagnostic but which are derived from cancer 99 per cent of the time. Therefore, if these cells appear, the patient is suspected of cancer and should be followed for a very long time if the first diagnostic procedures do not demonstrate it. In this respect the vaginal smear method is different from most laboratory procedures; rapport should exist between the clinician and cytologist. This does not mean that the cytologist requires the clinical information. On the contrary, it has been found to be better that the cytologist know nothing about the patient until the cells have been evaluated: otherwise subjective errors will creep in. In the past, advocates of the method have had to use only the material which demonstrated the *reliability* of the diagnosis. They have had to refrain from demonstrating the additional group of cases in which the test is a more *sensitive* but only a *presumptive* indication of malignancy. It can be said that there are diagnostic smears and there are suspicious smears, and as experience is gained the former category enlarges and the latter increases in usefulness.

There are several situations in which the vaginal smear has an outstanding and special application. The first has already been suggested when equivocal biopsies were referred to. Those gynecologists who observe many patients with cancer are regrettably familiar with the small cervical lesion or even the larger one without well defined edges for which the biopsy report is an admirable piece of literature but without a title. Added to this is the lesion which looks like cancer but which upon biopsy is not shown to be cancer. It is instructive to consider that a smear is a sampling of the entire surface of the lesion and the biopsy section is a radial plane, ten micras thick, through the lesion. A positive smear does not wholly contradict a negative biopsy. It simply indicates the need for another biopsy.

CASE REPORTS

Case No. 1: A 55-year-old woman without gynecological symptoms had a circular reddened area about the cervical os, which was considered to be simple erosion. The smear showed innumerable malignant cells of the squamous type. The biopsy showed no epithelium except for a few rete pegs indistinguishable from normal downward extensions. (One hestitates to say this because anyone but a pathologist is apt to laugh at it, but it is quite possible to wipe the carcinoma right off the surface of a biopsy specimen.) Further biopsy material demonstrated carcinoma, and a section of the endocervix showed where most of the carcinoma was. This was an in situ carcinoma although the glands were penetrated. It is rather characteristic of in situ carcinoma to spread on the surface lining over a large area. There may be no ulceration or induration.

Case No. 2: A 53-year-old visitor at the anti-cancer clinic had no symptoms and the cervix looked perfectly normal. The rest of the pelvic examination was negative except for a mild atrophic vaginitis. The smears showed almost nothing other than carcinoma cells, even though they were taken from material in the posterior fornix. Section of the cervix showed that the carcinoma was lining the canal. The thin layer of cancer could be associated with no induration. A considerable number of smears were taken, to be used for teaching purposes, and they showed literally thousands of malignant cells.

The point may be made that the two cases reported are of the kind in which cancer is the least likely to be suspected on the basis of either presenting symptoms or pelvic examination; but the lesion sheds copious cells, and it is in such cases the chance of cure is best.

Case No. 3: A 52-year-old woman, one year past the menopause, complained of slight mucoid discharge for the previous five months. Pelvic examination disclosed a 1 cm. smooth translucent polyp protruding from the os and it was thought that this was the source of the discharge. Several small fibromyomata were also palpated. Vaginal smears showed striking clusters of cells with nuclear predominance, crowding irregularity, and hyperchromatism. Curettage revealed adenoacanthoma in the uterine cavity. After intracavitary radium treatment, the panhysterectomy specimen showed no remnant of carcinoma.

Case No. 4: A 32-year-old woman had had a supracervical hysterectomy and right salpingo-oophorectomy because of fibromyomata and endometrial cysts. Subsequently, an examination showed what was described as a "clean erosion" on the cervix. A smear was taken before cauterization and abundant malignant cells were found. Biopsy showed an early non-invading carcinoma.

The greatest value of the vaginal smear has been the acceleration of the diagnosis of cancer in women whose presenting symptoms or lesions were not sufficiently alarming to provoke surgical diagnostic measures. Without doubt, in most cases the diagnosis would have been made eventually, but many months have been saved, and not only by pathognomonic cells on the smears, but also by suspicious and even atypical cells. It is not the function of the vaginal smear to save the trouble of biopsy or curettage. On the contrary, it increases the frequency of these procedures.

The preparation of the vaginal smear is extremely simple and takes about 15 seconds. If a lesion is present on the cervix it should be scraped; if not, material from the posterior fornix or on the lower blade of the speculum is used. The smear need not be uniformly thin—a thickness just short of complete opacity is a good rule. The slides should then be placed immediately in an equal mixture of 95 per cent alcohol and ether before there is any drying. If there is no ether handy, 95 per cent alcohol is almost as good. After fixation for an hour, the slide may be allowed to dry and it retains its stainability for weeks. It is not necessary to transport the slides in fixative to the laboratory, and the author has found no advantage in coating them with glycerine as has been advocated by others.

The method should not be considered as a screening test to "rule out cancer." In the author's series, approximately 4 per cent of proved cases have been missed on the smear. It is true that some of these smears were technically faulty, having been too scanty, or taken where bleeding was brisk so that nothing but blood was present on the smear. Nevertheless, "Rule out carcinoma" is a very unsuitable inscription on the request sheet.

CASE REPORT

Case No. 5: A 32-year-old woman complained of tenderness in the right lower quadrant. On pelvic examination a small amount of white discharge was seen in the external os. Smears from the posterior fornix showed many malignant cells, and upon reexamination a reddened granular area on the posterior lip was noted. It proved malignant on biopsy.

In most of the similar cases of poor visualization in which reexamination was instigated by positive smears, there were lesions on the posterior lip. It has been difficult to assess the "provocative" value of the vaginal smear in the presence of banal appearing lesions of the cervix because the description of the lesion on the second examination, after the positive smear report was given, has frequently been much more suggestive than the description given after the first examination.

At present, patients are not treated for cancer unless the biopsy warrants it. There is no need to compromise with this principle in the diagnosis of uterine cancer, although it may occasionally be justified in cancer of the lung when the tumor is located beyond the view through the bronchoscope.

A specialized application of the vaginal smear diagnosis is the detection of recurrence after radiation. This is usually only of prognostic value but may frequently aid in planning palliative therapy.

Case detection at anti-cancer clinics in the eastern United States has been low—about one case in 500 visitors. Data from similar clinics for which examinations are done by the University of California Cytological Laboratory have not yet been analyzed. It has been stated that an undue amount of time and labor is required for the yield, but the technicians at the Cytological Laboratory have not found such material particularly burdensome. A well trained, experienced technician can screen a slide without unusual cell components in five minutes and when the anti-cancer slides are received in small groups and distributed among several technicians there is no great effort required. No increase of staining time is needed at all; the slides are stained in batches and it takes no longer to stain 20 than to stain one.

Technicians can be trained in about four months to recognize suspicious cells. Their task is to mark them for evaluation by the cytologist. Because of the time required, it is not practicable for a pathologist to do his own screening.

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Subacute Bacterial Endocarditis

A Report on 57 Patients Treated with Massive Doses of Penicillin

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SUMMARY

Fifty-seven patients with subacute bacterial endocarditis were treated with doses of penicillin varying from 500,000 to 20,000,000 units per day. Diagnosis was confirmed in some cases by growths on blood culture, in others by postmortem examination. In those cases in which the diagnosis was established by blood culture, the in vitro sensitivity of the organism to penicillin was determined and penicillin then was administered by continuous intramuscular infusion in a dosage calculated to produce blood levels of penicillin four to five times that required for in vitro inhibition. Penicillin was given for a period of 21 days, and blood cultures were made periodically during and after treatment.

Of the 57 patients, 38 were cured (66.7 per cent), and 19 died (33.3 per cent).

Of the 19 who died, three did so within 48 hours of hospitalization and seven died despite adequate treatment. Of these seven, three died of cerebral emboli, two because of resistance to penicillin and streptomycin, one because of congestive heart failure, and one of undetermined cause. The remaining nine who died were considered to have been inadequately treated in that there was (1) failure to obtain sensitivity, (2) inadequate dosage of penicillin, (3) delay in starting treatment, or (4) failure to recognize mixed infections.

There were five patients with repeatedly sterile blood cultures during life. In all of these cases, streptococcus viridans was recovered at postmortem examination. In an attempt to determine how long therapy should justly be withheld in patients with repeatedly sterile blood cultures, 140 cases of subacute bacterial endocarditis in which positive blood cultures had been obtained were reviewed. From the review it was determined that if blood cultures taken during the first two days are reported sterile, the chance of subsequent cultures proving positive is minimal. Therefore, for patients in whom the diagnosis seems otherwise obvious, delaying treatment for more than two days is not justified even though the blood culture be sterile. In cases in which blood cultures are repeatedly sterile, a dosage of 6,000,000 to 10,000,000 units of penicillin daily for 21 days is advisable.

High bacterial resistance to penicillin and streptomycin was found in four fatal cases. In one of these, the infecting organism was streptococcus viridans, and in three it was staphylococcus albus. There was one patient with pneumococcal meningitis complicated by unrecognized streptococcal viridans bacterial endocarditis.

Over a four-year period (1944 to 1948) 57 cases of subacute bacterial endocarditis were treated with doses of penicillin varying from 500,000 to 20,000,000 units per day. An attempt was made to standardize the management of this disease, and except for minor variations, the following routine was usually followed.

DETERMINATION OF PENICILLIN DOSAGE

Once a positive blood culture was obtained, the in vitro sensitivity of the organism to penicillin was determined. It has been found that approximately 90 per cent of the strains of streptococcus viridans are inhibited in vitro by 0.1 units of penicillin per cc. of culture, and that the remaining 10 per cent may require up to 25 or more units per cc. for inhibition.

After the in vitro sensitivity had been determined, penicillin was given by continuous intramuscular infusion in a dosage calculated to produce blood levels of penicillin four to five times that required for in vitro inhibition. The dosage and average blood level obtained are listed in Table 1.

The correlation between the in vitro sensitivity and the clinical results was good in those cases in which the organism was found to be sensitive to less than 0.5 units per cc. of culture. With the more resistant organisms, the correlation between the in vitro sensitivity and clinical results was not quite as consistent.

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TABLE 1.—*Blood Levels of Penicillin Obtained with Various Doses of the Drug*

Dosage per Day Units	Average Blood Level of Penicillin (Units per cc. of Blood)
200,000	.05
300,000	.10
500,000	.20
1,000,000	.50
2,000,000	1.20
For each additional 1,000,000	Increases by .50 to 1.00

METHOD OF ADMINISTRATION OF PENICILLIN

The penicillin was, with a few exceptions, given by continuous intramuscular infusion. Studies by Hirsch and Dowling[1] showed that penicillin given by intermittent injection did not maintain blood levels as high as did continuous intramuscular infusion. These investigators also observed that with a continuous intramuscular infusion, blood levels similar to those obtained by continuous intravenous administration could be obtained, and that 50 per cent less penicillin was required. Other obvious advantages of a continuous intramuscular infusion are that it can be used when nursing staffs are inadequate, when hospitalization is impossible, and when patients object to multiple intermittent injections.

PERIOD OF ADMINISTRATION

Penicillin was administered in almost all cases for a period of 21 days. Blood cultures were taken prior to treatment, at weekly intervals during treatment, and at weekly intervals for two months after therapy had been discontinued. Thereafter blood cultures were taken whenever reinfection was suspected. In event of relapse after completion of therapy, the sensitivity of the organism was redetermined and penicillin administered in twice the dosage ordinarily employed.

SELECTION OF CASES, RESULTS OF THERAPY

The 57 cases of subacute bacterial endocarditis upon which this report is based were either those in which positive blood cultures were obtained during life, or cases with repeated sterile blood cultures during life but in which, at postmortem, positive cultures were obtained from the bacterial vegetations on the heart valves and elsewhere. Thirty-eight of the patients (66.6 per cent) were cured and 19 (33.3 per cent) died.

The 19 cases in which the patient died were very carefully reviewed and analyzed as to the cause of death and as to possible errors in management (Table 2).

Some of the difficulties and errors in the management of subacute bacterial endocarditis which were observed in the present series will be discussed in detail along with the presentation of illustrative case histories.

One of the most difficult problems in the management of subacute bacterial endocarditis is presented by the finding of repeatedly sterile blood cultures in patients in whom the diagnosis appears otherwise obvious. In the present series, there were five such cases. In all five, positive cultures of streptococcus viridans were obtained at postmortem examination from the vegetations on the heart valves. The case histories and pertinent postmortem findings in these cases are presented.

CASE REPORTS

CASE 1: A 45-year-old white male was admitted to the hospital complaining of nausea, vomiting and ankle edema of three weeks' duration. "Heart trouble" was first discovered at the age of 18 but since that time the patient had been in good health until the present entry.

He was pale and appeared to be acutely ill. The temperature was 100.4° F., the pulse rate 140 per minute and respirations 24 per minute. The blood pressure was 110 mm. of mercury systolic and 70 mm. diastolic. There was pronounced pallor of the skin and mucous membranes. There was grade III enlargement of the heart on percussion. The point of maximum intensity could not be determined. A grade IV mitral systolic murmur and a grade III aortic systolic murmur were heard and a systolic thrill was present over the aortic area. The rhythm was that of auricular fibrillation. The liver edge was felt three fingers' breadth beneath the right costal margin. Clubbing of fingers and toes was noted.

The erythrocyte count was 2,200,000; the hemoglobin was 7 gm. per 100 cc., a value of 38 per cent. Leukocytes numbered 4,800 with 68 per cent polymorphonuclear cells. The urine contained 1 plus albumin and many erythrocytes. The nonprotein nitrogen level was 55 mg. per 100 cc. and the total plasma protein was 7.1 gm. per 100 cc.

The diagnosis upon admission was subacute endocarditis superimposed upon aortic stenosis of rheumatic origin. The patient's course was febrile and showers of petechiae appeared shortly after admission. On the tenth hospital day after six sterile blood cultures had been reported, the patient was started on 20,000 units of penicillin intramuscularly every two hours. The course was progressively downhill and

TABLE 2.—*Subacute Bacterial Endocarditis: Causes of Death and Errors in Management in 19 Cases*

	No. of Cases	Cause of Death
I. Death within 48 hours of hospitalization	3	Cerebral embolus (1), undetermined (2).
II. Treatment adequate	7	Cerebral embolus (3), resistance to penicillin and streptomycin (2), congestive heart failure (1), undetermined (1).
III. Treatment inadequate	9	
a. Treatment denied, heart badly damaged, required 20 or more million units of pencillin daily.		Congestive heart failure (1).
b. Failure to determine sensitivity, inadequate dosage, and delay in onset of treatment.		Septicemia (2), carcinoma of the colon with severe anemia and cachexia (1).
c. Failure to recognize mixed infection.		Heart failure (1).
d. Delayed and inadequate treatment in patients with repeatedly sterile blood cultures in whom diagnosis was otherwise obvious.		Cerebral embolus (1), congestive heart failure (1), myocardial abscess (1), undetermined (1).

despite penicillin and frequent blood transfusions, the patient suddenly became comatose and died on the 36th hospital day.

At postmortem, the heart weighed 600 gm. and was covered with a shaggy exudate. The aortic valve was stenotic, consisted of two cusps and was almost completely replaced by vegetations. The surfaces of both kidneys had numerous petechial hemorrhages and microscopically were typical of focal embolic glomerulonephritis. Multiple small cerebral emboli were also present. Postmortem culture of the vegetations of the aortic valve revealed streptococcus viridans.

Discussion: This patient, starting on the tenth hospital day after six sterile blood cultures, was given 240,000 units of penicillin daily for 21 days. At postmortem, it was obvious that the bacterial endocarditis had not been arrested. Treatment is considered to have been inadequate in that too small a dosage of penicillin was employed.

Case 2: A 25-year-old white male was admitted to the Los Angeles County General Hospital complaining of chills and fever of two days' duration; dyspnea, orthopnea, hemoptysis and ankle edema were present. Heart disease was first detected in 1940 when the patient had been rejected by the army.

He was acutely ill, dyspneic, orthopneic, and cyanotic, and numerous petechiae were found on the anterior surfaces of both thighs. The temperature was 102° F., the pulse rate 120 per minute, the respirations 44 per minute, and the blood pressure 104 mm. of mercury systolic and 46 mm. diastolic. Numerous rales were present at both lung bases. Cardiac enlargement was present, the point of maximum intensity being felt in the fifth interspace at the anterior axillary line. Grade III aortic and mitral systolic murmurs were reported. Gallop rhythm was present. The liver edge was felt two fingers below the right costal margin.

The hemoglobin content of the blood was 5 gm. per 100 cc. Leukocytes numbered 12,200. The sedimentation rate was normal. The urine contained 2 plus albumin. The nonprotein nitrogen was 95 mg. per 100 cc. Reactions to both Wassermann and Kahn tests were positive.

The electrocardiogram showed left ventricular hypertrophy and the orthocardiogram 2-3 plus left ventricular enlargement.

After admission the patient continued to have a low grade fever accompanied by intermittent showers of petechiae. Fourteen repeated blood cultures were all reported sterile. In spite of the failure to recover an organism, the diagnosis was thought to be subacute bacterial endocarditis and penicillin was given in a dosage of 300,000 units per day for the first two weeks of hospitalization, at which time it was increased to 200,000 units every two hours. Additional therapy consisted of blood transfusions, low salt diet, mercurial diuretics, and digitalis. Despite this vigorous therapy, the course was progressively downhill and the patient died on the 27th hospital day.

At postmortem the heart weighed 550 gm. There was a bicuspid aortic valve, the free margin of which was thickened and had numerous recent friable vegetations. The mitral valve appeared normal. There was also a 3 mm. defect in the membranous portion of the interventricular septum. Examination of the brain showed gross subarachnoid hemorrhage which was ascribed as secondary to septic emboli. Postmortem culture of the bacterial vegetations revealed streptococcus viridans.

Discussion: The diagnosis of this case appeared obvious and penicillin was started shortly after admission of the patient to the hospital. The dosage of penicillin was 300,000 units per day for the first two weeks of hospitalization and 2,400,000 daily thereafter. The fatal outcome illustrates that although this dosage might well have been adequate for most cases of subacute bacterial endocarditis, it was inadequate for this patient.

Case 3: A 47-year-old white male entered the hospital complaining of malaise, cough, chills, and fever, and ankle edema of two to three weeks' duration. He also gave a history of syncopal attacks since May 1942, at which time a complete heart block was first observed.

He was a well-developed and well-nourished white male who appeared neither acutely nor chronically ill. The temperature was 100° F., the pulse rate was 50 per minute and the respirations 20 per minute. The blood pressure was 112 mm. of mercury systolic and 60 mm. diastolic. There were several minute erythematous lesions on the anterior surface of both thighs. The lungs were clear. There was grade II cardiac enlargement, the point of maximum intensity being felt in the fifth intercostal space, 1 cm. to the left of the midclavicular line. There was a systolic thrill over the aortic area and a grade IV aortic systolic murmur transmitted into the neck. The liver edge was palpable two fingers below the right costal margin. The spleen was palpable one finger beneath the left costal margin.

The erythrocyte count was 4,500,000, and the hemoglobin content was 13.5 gm. per 100 cc. Leukocytes numbered 9,600 with 80 per cent polymorphonuclear cells. Results of urinalysis were negative. Seventeen blood cultures were all sterile. A urine culture was positive for staphylococcus albus and a gamma streptococcus. The electrocardiogram showed complete heart block.

Despite repeated sterile blood cultures, the diagnosis was thought to be subacute bacterial endocarditis engrafted on rheumatic aortic stenosis. On the 14th hospital day, penicillin was started in a dosage of 1,500,000 units daily by continuous intramuscular drip and continued for ten days. The patient then left the hospital at his own request.

The patient was readmitted nine days later complaining of malaise, chills, fever and ankle edema. He appeared pale, dyspneic and apprehensive. The temperature was 100° F., the pulse rate 36 per minute and the respirations 30 per minute. There were moist rales at both lung bases. The heart was enlarged and the thrill and systolic murmur over the aortic area were unchanged. The liver and spleen were both palpable two fingers beneath the right and left costal margins respectively.

The hemoglobin content was 10 gm. per 100 cc. of blood. Leukocytes numbered 5,200 with 55 per cent polymorphonuclear cells. The sedimentation rate was 10 mm. in one hour. Five blood cultures at this time were all sterile.

The day following admission, the patient suddenly became cyanotic, had a convulsion, and died. It was thought that he had had cardiac arrest.

The postmortem findings were: The heart weighed 700 gm. The aortic valve was stenosed, bicuspid and calcified, and small adhesions were present on the free margin. The mitral valve was normal. The liver was enlarged, and the cut surface had a nutmeg appearance. The spleen was also enlarged and had several old infarcts.

Postmortem cultures of the heart valve and of the spleen were both positive for streptococcus viridans.

Discussion: After 17 sterile blood cultures, penicillin therapy was started on the 14th day of hospitalization. After 19 days of treatment the patient left the hospital at his own request. It is impossible to speculate as to what the outcome would have been had the course of penicillin therapy been completed. It was felt, nevertheless, that penicillin therapy had been delayed too long.

Case 4: A 39-year-old truck driver first entered the Los Angeles County General Hospital in 1944 because of hemoptysis. At this time he was found to have rheumatic heart disease with mitral stenosis and auricular fibrillation. In May 1945, there was an episode of congestive heart failure accompanied by pneumonitis. In December 1946, the patient reentered complaining of chills, fever, cough, and chest pain of one week's duration. He was not in acute distress and did not have dyspnea, orthopnea or cyanosis. The temperature was 100.4° F., the pulse rate 90 per minute and the respirations 24 per minute. Blood pressure was 120 mm. of mercury systolic and 74 mm. diastolic. There were moist rales at both lung bases. The heart was enlarged and fibrillating; the point of maximum intensity was in the sixth intercostal space at the anterior axillary line. Systolic and diastolic murmurs were heard at both mitral and aortic areas. The liver was enlarged three fingers below the right costal margin.

The hemoglobin content was six gm. per 100 cc. of blood. Leukocytes numbered 4,300 with 76 per cent polymorphonuclear cells. The urine contained 4 plus albumen and many erythrocytes. Results of Wassermann and Kahn tests were doubtful. Fourteen blood cultures were all reported sterile. Retrograde and intravenous urograms were all reported negative.

The patient was readmitted three months later with congestive heart failure and again had hematuria. Penicillin was given for six days in a dosage of 125,000 units every three hours. One week after hospitalization the patient became comatose and died within a few hours.

The postmortem findings were: The heart weighed 520 gm. A fish mouth mitral stenosis was present and friable vegetations were present upon the anterior leaflet of the mitral valve. The kidneys weighed 450 gm. The capsules stripped with ease, showing a surface studded with minute petechiae. Microscopic examination of the kidneys showed incomplete destruction with shrinkage of some of the glomeruli. Necrosis of the glomerular tufts was also present. Examination of the lungs showed pulmonary infarction in the left lower lobe. A small amount of subarachnoid hemorrhage was found over the right frontal convolution of the brain. Postmortem culture of the heart valve showed streptococcus viridans.

Discussion: Penicillin therapy was withheld until the final hospital admission. At this time subacute bacterial endocarditis was considered a strong diagnostic possibility despite 14 negative blood cultures. In this case, therapy was obviously delayed too long, and the dosage of penicillin employed was inadequate.

Case 5: A 61-year-old white housewife, well nourished and well developed, entered complaining of chills and fever of two weeks' duration. The patient had a history of heart disease since 1925. In 1930, at the age of 42, she had had an attack of acute rheumatic fever with polyarthritis for one year. During the year prior to admission, she had noticed progressive enlargement of the fingertips and increasing substernal distress.

There was pronounced cyanosis of lips and fingernails. Dyspnea and orthopnea were not present. The temperature was 100.2° F., the pulse rate was 92 per minute and the respirations 18 per minute. The blood pressure was 120 mm. of mercury systolic and 90 mm. diastolic. Clubbing of the fingers and toes was present. Crepitant rales were heard at both lung bases. There was grade II cardiac enlargement and a grade III systolic murmur was heard all over the precordium, loudest over the aortic area, and transmitted into the neck. The aortic second sound was poor. The rhythm was irregular.

Erythrocytes numbered 5.4 million per cc. The hemoglobin content was 14.5 gm. per 100 cc. The leukocyte count was 10,800 with 76 per cent polymorphonuclear cells. Results of urinalysis were negative. Thirteen blood cultures were all reported sterile.

Ten days after admission, despite 13 sterile blood cultures, a presumptive diagnosis of subacute bacterial endocarditis was made. Penicillin was given in a dosage of one million units daily by continuous intramuscular infusion for the next 21 days. The course continued febrile, and on the 65th hospital day the patient suddenly died.

The postmortem findings were: The heart weighed 500 gm. The leaflets of the aortic valve were thickened, the commissures were fused, and large calcified vegetations were present on the free margins. Between the left posterior and anterior cusps of the aortic valve there was a small opening which communicated with a small abscess cavity (1 by 1 by 1 cm.) in the adjacent adventitia. Between the right posterior and left posterior aortic valve cusps there was a large abscess cavity (4 by 4 by 4 cm.) which extended into the adventitia between the aorta and the left auricle. Both cavities were filled with purulent material. There was an old myocardial infarction present in the posterior superior portion of the interventricular septum. In addition, recent myocardial infarcts were present in the anterolateral wall of the left ventricle and in the apical portion of the interventricular septum.

Postmortem culture of the purulent material in the abscess cavities revealed streptococcus viridans.

Discussion: This patient, with repeatedly sterile blood cultures and a presumptive diagnosis of subacute bacterial endocarditis, received a dosage of penicillin which would have been adequate in most cases. At postmortem, myocardial abscesses were found, and one can only speculate as to whether more vigorous and prompt therapy might have altered the result in this case.

Loewe and Eiber[2] discussed the problem of repeatedly sterile blood cultures in 11 patients in whom the diagnosis of subacute bacterial endocarditis appeared otherwise obvious. Ten of the 11 patients were successfully treated, nine with penicillin and heparin and one with streptomycin. Loewe and Eiber concluded that in such cases treatment should not be withheld in an attempt to obtain a positive blood culture, but that intensive penicillin therapy should be started as soon as possible, and the therapeutic response be used as confirmation of the diagnosis.

In an attempt to decide how long therapy may be justifiably delayed, the author reviewed 140 cases of subacute bacterial endocarditis in which positive blood cultures had been obtained (Table 3). In 129 cases, or 92 per cent, cultures taken during the first day were reported positive, and 137, or 97.8 per cent, taken within the first two days were found positive. From this it appears that if a positive culture ever is to be obtained, it will be found in cultures taken in the first two days in the great majority of cases. The obvious conclusion, then, is

Table 3.—*Time Occurrence of Positive Blood Cultures of Subacute Bacterial Endocarditis*

Organism	1st Day	2nd Day	3rd Day	4th Day	5th Day	56th Day
Streptococcus viridans	125 cases	6 cases	1 case		1 case	1 case (78 negatives previously)
Staphylococcus albus	4 cases					
Gonococcus			2 cases			
Total	129	8	1		1	1

that the beginning of treatment should not be delayed more than two days even in the face of sterile cultures.

PENICILLIN DOSAGE WHEN CULTURES ARE STERILE

The problem of what dosage of penicillin to employ in cases of subacute bacterial endocarditis with negative blood cultures is a very difficult one. Unfortunately, sensitivity tests were not performed in the cases in this series in which the organism was cultured at postmortem. Since it is known that 90 per cent of streptococcus viridans organisms are inhibited by 0.1 unit of penicillin per cc. of culture, and since 300,000 units of penicillin will maintain a blood level of 0.1 unit per cc. of blood, it is believed wise to maintain a blood level of 0.5 unit per cc. of blood. This can be done with a dosage of 1,000,000 units of penicillin daily in the average case. Because in the 10 per cent of cases remaining the streptococcus viridans are very resistant and since it is believed the organisms that are difficult to recover on culture are more resistant, a blood level five to ten units should be maintained in those cases in which blood cultures are sterile. Therefore, a daily dosage of penicillin of six to ten million units daily is advisable.

BACTERIAL RESISTANCE

In four of the cases in the present series in which the patient died, the infecting organism had a pronounced in vitro resistance to penicillin and streptomycin. In one of these cases, the organism was streptococcus viridans, and in the remaining three cases, staphylococcus albus.

A report of one of these cases is presented to illustrate increasing bacterial resistance following an initial unsuccessful course of penicillin.

CASE REPORT

Case 6: A 70-year-old white male was admitted to the Los Angeles County General Hospital with history of a urinary infection following a transurethral prostatic resection about one year previously. He was in good health until 11 weeks prior to admission when weakness, anorexia, dyspnea and ankle edema were observed. Examination revealed rheumatic heart disease with aortic insufficiency. Blood cultures were positive for streptococcus viridans. The sensitivity of the organism was 0.39 units of penicillin per cc. of culture. Penicillin was given in a dosage of 4,000,000 units daily for four weeks and at the end of that time the blood cultures were negative. Three weeks later, the blood cultures were again positive, and the patient was rehospitalized.

The temperature was 99.2° F., the pulse rate was 108 per minute and the respirations were 20 per minute. The blood pressure was 150 mm. of mercury systolic and 56 mm. diastolic in the right arm and 148 mm. systolic and 48 mm. diastolic in the left. There was pallor of the skin and mucous membranes. The heart was enlarged to percussion, and the point of maximum intensity was felt in the fifth intercostal space 1 centimeter to the left of the midclavicular line. Grade III systolic and diastolic murmurs were present at both the primary and secondary aortic areas. Sinus tachycardia was noted. The liver edge was felt two fingers below the right costal margin.

The hemoglobin content was 9 gm. per 100 cc. of blood. Leukocytes numbered 3,700 with 64 per cent polymorphonuclear cells. The urine contained 10 to 15 erythrocytes per high power field. Blood cultures were positive for streptococcus viridans.

An orthocardiogram showed minimal left ventricular enlargement, and at fluoroscopy the aortic pulsations were noted to be collapsing in type. The electrocardiogram showed left ventricular hypertrophy.

Sensitivity tests showed that the infecting organism was quite resistant, requiring 25 units of penicillin or 31 micrograms of streptomycin per cc. of culture to inhibit growth. On the tenth hospital day, treatment was started with penicillin, 20,000,000 units daily by continuous drip, streptomycin, 400 mg. intramuscularly every three hours, and Statacin® (caronamide) 2 gm. every three hours. In addition, frequent blood transfusions were given. Penicillin and streptomycin blood levels on the second and third days of treatment were:

	2nd day of treatment	3rd day of treatment
Penicillin level	500 units per cc.	1,000 units per cc.
Streptomycin level	2 micrograms per cc.	5 micrograms per cc.

It was found that a 1:64 dilution of serum from the patient on either of the above days was sufficient to inhibit the organism in vitro.

The patient became confused, disoriented and finally comatose. He died on the 20th hospital day.

Permission for a postmortem examination was not obtained.

As to the three cases in which the infecting organism was highly resistant staphylococcus albus: In one case the point of sensitivity to penicillin in vitro was found to be 12 units of the drug per cc. of culture, and sensitivity to streptomycin was shown at 250 micrograms per cc. Because of the extreme myocardial damage present in the patient and the extremely large dosage of penicillin required (20,000,000 or more units daily), treatment was withheld. In the second case seven blood cultures were positive for hemolytic staphylococcus albus with an in vitro sensitivity to 6 units of penicillin or 30 micrograms of streptomycin per cc. of culture. In this case penicillin was started 48 hours prior to the death of the patient, so the effect of therapy cannot be evaluated. In the third case, growth of the organism continued in vitro even with a penicillin concentration of 100 units per cc. of culture. Streptomycin was found to inhibit growth in a concentration of 25 micrograms per cc. of culture. To have attained that level in the blood of the patient would have required 3 gm. of streptomycin every three hours, a prohibitive dosage. This case is reported in detail:

Case 7: A 56-year-old white female was first admitted complaining of chills, fever and weakness of ten months' duration. In February 1946, when the patient had first noticed fever and weakness, the cause had been diagnosed as gastroenteritis and the patient had been given 200,000 units of penicillin daily by intramuscular injection for one week but the weakness and fever persisted. In October 1946, physical examination revealed rheumatic heart disease with mitral insufficiency and mitral stenosis, splenomegaly and numerous petechiae. Blood cultures were said to be negative at that time, but the diagnosis of subacute bacterial endocarditis was thought to be a certainty. Penicillin was given in a dosage of 2,400,000 units daily for three weeks. At the end of this period, the fever still persisted and the patient was referred to the Los Angeles County General Hospital for further study and treatment.

At the time of admission, the temperature was 100.2° F., the pulse rate was 112 per minute, and respirations were 20 per minute. The blood pressure was 150 mm. of mercury systolic and 80 mm. diastolic. There were several petechiae over the lower middle back. An old retinal hemorrhage was noted in the fundus of one eye. There were moist rales at both lung bases. Grade I cardiac enlargement was noted, the point of maximum intensity being felt at the fifth intercostal space just outside the midclavicular line. Systolic and diastolic murmurs were heard at both the aortic and mitral areas. The liver edge was felt five fingers below the right costal margin, and the spleen was also palpable.

Erythrocytes numbered 3,500,000, and the hemoglobin content was 11 gm. per 100 cc. of blood. The urine contained many erythrocytes.

An electrocardiogram showed low voltage, and an orthocardiogram revealed a typical "mitral" heart with left auricular enlargement being demonstrated at the right oblique.

One week after admission, a blood culture was reported positive for staphylococcus albus, and six subsequent daily cultures were positive for the same organism. Sensitivity tests showed that the organism was penicillin-fast (no inhibition of growth in 100 units of penicillin per cc. of culture). Streptomycin was found to inhibit growth at a level of 25 micrograms per cc. of culture. It was calculated that this would require 3 gm. of streptomycin every three hours to obtain a therapeutic level in the patient. The patient's course was progressively downhill and the fever persisted despite 1,000,000 units of penicillin daily, accompanied by sulfadiazine. On the 29th hospital day the patient suddenly became stuporous. She died shortly thereafter. Permission for a postmortem examination could not be obtained.

PRESENCE OF MIXED INFECTION

The occurrence of mixed or double infection is infrequent. However, failure to recognize its presence may prove disastrous. In the present series, one patient who was initially admitted for pneumococcal meningitis had a positive blood culture for streptococcus viridans on the 20th hospital day. The diagnosis of subacute bacterial endocarditis was considered by some members of the attending staff at that time, but no specific therapy was instituted. Twenty-five days later the patient died. and postmortem examination revealed subacute bacterial endocarditis involving the mitral valve. This case is reported in detail:

Case 8: A 44-year-old white male truck driver was admitted complaining of fever and of stiffness of the neck and hiccoughs of three days' duration. Four months prior to admission the patient had had an attack of acute rheumatic fever accompanied by congestive heart failure. Since that time he had had dyspnea on exertion and digitalis had been given.

The temperature at the time of admission was 100.6° F., the pulse rate was 120 per minute, the respirations were 24 per minute, and the blood pressure was 110 mm. of mercury systolic and 50 diastolic. The neck was stiff, and pain was elicited on flexion of the neck. There were a few moist rales at the base of the left lung. Grade II cardiac enlargement was present, the point of maximum intensity being felt in the fifth intercostal space 1 cm. outside the midclavicular line. There were systolic and diastolic murmurs at both the aortic and mitral areas, and auricular fibrillation was noted. The edge of the liver was palpable two fingers below the right costal margin. The tip of the spleen was also palpable. Babinski's reaction was present bilaterally, and a positive Kernig's sign was obtained.

A spinal tap was done, and the pressure was 225 mm. of water. The fluid was cloudy and contained 1,980 cells (90 per cent polymorphonuclear). Pneumococci were found in the smear. Erythrocytes of the blood numbered 4,200,000 and leukocytes 13,300. The urine was normal. The Kahn test reaction was positive.

An electrocardiogram showed auricular fibrillation.

The initial diagnosis was pneumococcal meningitis, and the therapy consisted of penicillin, 40,000 units every three hours for 20 days, and sulfadiazine. On the 20th hospital day, a blood culture was reported positive for streptococcus viridans. A diagnosis of subacute bacterial endocarditis was considered but no definite therapy was started. During the next 25 days the course was gradually downhill, and the patient finally died of congestive heart failure.

At postmortem examination the heart weighed 550 gm., the aortic valve was deformed, and the anterior leaflet had numerous bacterial vegetations. The meninges were thickened and infiltrated with round cells. There was also a small mycotic aneurysm of the right posterior inferior cerebellar artery.

The authors are grateful to the interns and medical residents of the Los Angeles County General Hospital and to Drs. Donald T. Hunter and Lewis T. Bullock for aid and advice in this study.

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A Multiphasic Screening Survey in San Jose

C. Kelly Canelo, M.D., and Dwight M. Bissell, M.D., *San Jose;* and
Herbert Abrams, M.D., and Lester Breslow, M.D., *Berkeley*

SUMMARY

In the interest of economy and of better service to the persons examined, three screening tests of a kind usually made separately were combined and applied in a single examination of 945 employees in four industrial establishments. Miniature x-ray films of the chest were taken, blood specimens drawn and urine samples obtained so that studies and tests might be made to determine the presence of pulmonary or cardiac disease, syphilis, kidney disease, or diabetes. The history of each person examined was taken.

Through this multiphasic survey, 13 cases of significant disease previously unknown to the patient were discovered. Sixteen cases of significant disease, previously known, were also disclosed; and in several such cases treatment was begun or resumed.

The results in case finding were considerably greater than those of the customary screening for a single disease.

Mass screening programs in the fields of tuberculosis and syphilis are well established. The miniature photofluorographic technique and the improved serologic tests for syphilis have permitted health agencies to screen large populations for the presence of signs indicative of these diseases. These mass detection techniques represent great contributions to the campaigns for the control of tuberculosis and syphilis.

Recently screening techniques have been developed in the fields of diabetes and heart disease. Wilkerson and Krall[1] demonstrated in Oxford, Mass., the feasibility of a community-wide diabetes detection program based upon screening tests for blood-sugar level and glycosuria, with referral of suspicious cases for final diagnostic study. In the community studied 40 cases of diabetes were previously known to the physicians in practice there. Through the survey 30 new cases were discovered among the 3,516 persons tested. The total number of cases found indicated that the incidence of diabetes in the general population was 1.7 per cent. This means that there are approximately 2,000,000 cases of diabetes in the United States, a higher figure than ever before estimated.

Heart disease has also been shown amenable to a mass detection program. The miniature chest x-ray films taken during the course of a regular tuberculosis case-finding program in Los Angeles were interpreted specifically for the presence of cardiac abnormality. Approximately 2 per cent of the group surveyed with small films were found to have heart shadows which appeared enlarged or changed in contour. Follow-up examinations of this group disclosed that approximately one-half of them, or 1 per cent of the total adult population screened, had clinically significant, previously unknown heart disease. Obviously not all heart disease can be detected through such a radiographic survey, inasmuch as in many cases of heart disease the heart shadow is not abnormal. However, the fact remains that a substantial number (1 per cent) of people were found to have heart disease which was previously unknown to themselves and which required the care of a physician.

Thus, tuberculosis, syphilis, diabetes and heart disease have been proved detectable in the general population on a mass scale. Heretofore these screening procedures have been carried out for the most part separately. It has not been uncommon for a group of industrial employees to be surveyed for tuberculosis and then surveyed again a few months later for syphilis.

The multiphasic survey was conceived with a view to combining several of these tests in one "package." Such a combination accomplishes two purposes: First, economy, and second, a better service to the persons screened. There would be a considerable saving in the time and money of the sponsoring agencies if there could be a single health education campaign, record system and follow-up service for a screening program embracing several diseases, rather than the establishment of administrative machinery for each one separately. The individual participant and the physician to whom he was referred would have much more useful information concerning his health status from such a multiphasic survey than would be obtained from any single test. The loss of time from occupation would also be not much greater for a series of tests than it would be for any one alone.

With these considerations in mind, the Santa Clara County Medical Society, the San Jose City Health Department, and the California Department of Public Health undertook a multiphasic survey among the industrial employees in four San Jose

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Santa Clara County Medical Society Multiphasic Survey Committee (Canelo); San Jose City Health Officer (Bissell); Chief, Bureau of Adult Health, California State Department of Public Health (Abrams); Chief, Chronic Disease Service, California State Department of Public Health (Breslow).

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establishments. Committees of the medical society took an active part in planning all details of the program, in assembling physicians to draw the blood specimens, in the interpretation of the x-ray films and in the conduct of follow-up activities. The San Jose City Health Department supplied the services of its health educator, its nursing staff for history-taking and follow-up services, laboratory personnel and a laboratory for the performance of the blood sugar determinations. The State Department of Public Health assisted in planning of the study, furnished some physician and nurse time, provided some funds for laboratory services, furnished the x-ray machine and personnel, and performed the serologic tests for syphilis.

The close cooperation between the county medical society and the public health agencies is worthy of special note. The county medical society did much more than give formal approval to the project; it played a real part in policy formation and the members devoted many hours to the details of the project.

In all, 945 employees at four industrial plants were screened. These plants included a department store, two units of a large food machinery corporation and an establishment manufacturing paper labels. The management and the industrial physicians of these establishments agreed that findings concerning individual participants in the study would be handled confidentially with the employees. Cooperation of employees was enlisted through printed educational materials and talks with union leaders and memberships. An intensive health education campaign in each plant culminated in an advance sign-up of individuals who wished to participate in the survey. This advance sign-up was to facilitate operations at the time tests were carried out.

The occupational range of employees was wide, including manual and clerical workers, unskilled labor, skilled labor and executives. Table 1 shows the age and sex distribution of those screened. A predominance of males in the age group 25 to 64 years will be noted.

A survey team went to each of the four plants. Five procedures were performed on the premises: A brief history taken, a blood specimen drawn, a urine specimen secured, a miniature chest x-ray taken and urinalysis performed. When the participant came to the first table in the examination line, his history form on which certain identifying information had been entered during the advance sign-up was pulled from the files; the details of the history were then completed by a public health nurse. Particular attention was given to familial incidence and symptoms of the diseases under consideration. Note was made of the amount of food consumed at and time-interval since the last meal. A quadruplicate numbering device was used so that the same number could be stamped on the history form, on the labels for the two blood specimen bottles and on the label for the urine specimen bottle. Approximately 10 cc. of venous blood was taken from each person and the specimen divided equally between two vials; the one for the blood sugar determination contained a small amount of oxalate and was immediately shaken; the other was allowed to clot for the serologic test for syphilis. The person next entered an x-ray unit parked nearby, and lastly deposited a urine specimen.

TABLE 1.—*Age-Sex Distribution of Participants*
San Jose Multiphasic Survey

Age	Male	Female	Total
15-24	59	55	114
25-44	395	123	518
45-64	223	68	291
65+	17	2	19
	694	248	942

Since it was important that the blood and urine specimens be taken within one to two hours following meals the number of persons scheduled was limited to approximately 50 to 75 from 8 a.m. to 9:30 a.m. and to about the same number in the afternoon from 1 to 2:30. Employees had been advised during the educational program before the survey to eat an amount of food for breakfast or lunch sufficient to equal 50 grams of carbohydrate.

Personnel included one clerk to handle the history cards and stamp identifying numbers; public health nurses to take histories; physicians to draw the blood specimens; volunteer workers to assist with the blood specimen tubes; an x-ray technician; one technician to carry out the urine sugar and albumin tests in the plant; and two laboratory technicians to perform the blood sugar determinations.

Urinalysis was performed at the plants. The survey team brought necessary supplies and equipment for the Benedict test for sugar, and the Roberts test for albumin. Blood sugar content was determined by the standard Folin-Wu method in the city health department laboratory. The serologic tests for syphilis were carried out by the State Department of Public Health laboratory. Chest x-ray films were interpreted by two radiologists, members of the Santa Clara County Medical Society.

Criteria used for follow-up were these:

Blood sugar—160 mg. per 100 cc. or over (130 mg. if the participant had eaten less than the required amount of food, or more than two hours before the test).
Urine sugar—positive or trace.
Urine albumin—positive or trace.
Serologic test for syphilis—positive or doubtful.
Chest x-ray film—lung or heart abnormalities.

A person who met any of these criteria was informed by letter that he should visit his own doctor for further examination. The doctor designated by the employee at the time of the screening test was given the findings and requested to inform the county medical society of the final result of his examination. The medical society also provided each doctor a brief statement of suggestions concerning the diagnosis of the diseases under consideration. Persons who did not name a physician at the time of the survey or who did not report to the physician after a brief period were visited at home by a public health nurse from the health department in order to assure follow-up examinations.

Results of the screening tests are shown in Table 2. (From these tables have been excluded three persons whose tests showed evidence of diabetes but who subsequently were found not to be employed at the plants studied.)

Of some interest is the relatively high percentage who showed glycosuria, mostly small amounts following the meal. The high proportion of those manifesting albuminuria was due partly to the fact that there were many young females in the group and the specimens were voided specimens rather than catheterized. The lung x-rays were interpreted as suspicious in a somewhat greater proportion of cases than is usual in such surveys. This may have been due in part to the fact that there did appear to be a relatively high incidence of significant old healed tuberculosis, and in part to the inclination of the radiologist to interpret the films rather closely.

Table 3 presents the summary of findings. These are based upon replies from the physicians to whom the individuals were referred, final evaluation by the survey committee in a few instances, and a search of the health department records for communicable disease cases. The finding of 15 cases of diabetes in an industrial population of less than 1,000 is not surprising in view of Wilkerson and Krall's work. Nine of these cases were previously unknown either to the patients themselves or to their physicians. Of the six cases of diabetes that were previously known, at least two were not under adequate control inasmuch as the patients had blood sugar levels of more than 350 mg. per 100 cc., positive urine sugar tests and definite symptoms of the disease. Among the nine persons with newly discovered cases of diabetes, five showed blood sugar levels of more than 190 mg. per 100 cc. on the screening test. one had a blood sugar level of 180 mg. and three had levels of less than 160 mg. It is of interest to note that two of the three persons finally demonstrated to have diabetes, although the screening test had shown blood sugar less than 160 mg. per 100 cc., had either eaten less than the recommended amount of food or had gone for more than three hours since the last meal. These results confirm the impression that a content of 160 mg. per 100 cc. is an adequate criterion of suspicion of diabetes, provided the individual does digest a meal within one to two hours preceding the test.

Table 2.—*Results of Screening Tests*
San Jose Multiphasic Survey

Test	Negative	Per Cent Positive	Trace or Suspicion
Urine sugar	939	5.1	8.4
Blood sugar	917	4.3	....
Urine albumin	941	2.2	2.2
Blood test for syphilis	944	0.3	0.1
X-ray, lungs	945	....	5.2
X-ray, heart	945	....	1.4

Table 3.—*Summary of Findings*
San Jose Multiphasic Survey

	Previously Known	Not Previously Known	Total
Diabetes	6	9	15
Heart disease	3	..	3
Nephritis	2	2	4
Tuberculosis, active*	..	2	2
Silicosis (?)	1	..	1
Syphilis	4	..	4
	16	13	29

*Eight cases of apparently arrested tuberculosis were also disclosed.

Table 4.—*Blood Sugar Levels Related to Family History of Diabetes*
San Jose Multiphasic Survey

Blood Sugar	Total No.	Family History % Positive	Family History % Negative
130	752	73.1	85.5
130–159	101	11.8	11.2
160–189	27	9.7	2.2
190	14	5.4	1.1
		100.0	100.0
	894	(93)	(801)

There is considerable interest in the familial aspects of diabetes. Among the 15 cases of diabetes disclosed in this survey, six were in persons who gave a definite history of diabetes in parents or siblings, eight gave no such history, and in one case the history was unknown. This 43 per cent incidence of family history of diabetes among diabetic patients may be compared with an incidence of only 10 per cent of family history of diabetes in the rest of the industrial population surveyed.

Table 4 indicates the relationship of blood sugar levels in the group surveyed to family history of diabetes. Here, again, it will be noted that the incidence of family history of diabetes was four to five times greater among those with blood sugar levels above 160 mg. per 100 cc. than in those with blood sugar below that level.

Only three cases of heart disease were disclosed, and all of these were previously known. That the findings in this field did not come up to expectations may have been due in some degree to the fact that there was less intensive follow-up of suspected cardiac cases than of suspected diabetes. It should be mentioned that, although all three cases were previously known, the survey did bring one patient back under treatment who had lapsed from care.

Two new cases of nephritis were discovered in addition to the two previously known. Two persons with new cases of apparently active tuberculosis were placed under observation as a result of the survey. as well as one with suspected silicosis.

Four persons had positive or doubtful serologic tests for syphilis. One of these was not followed; the other three were proved to have syphilis but their cases had been previously known. In addition there was one person who gave a history of being under treatment for syphilis at the time of the survey but his test was negative.

DISCUSSION

The experience here reported demonstrates the feasibility of multiphasic screening. In the future conduct of such programs, it is suggested that the criteria for referral for further diagnostic study be made somewhat higher. This would avoid the referral of a considerable number of individuals with only borderline tests and it would not significantly reduce the number of actual cases of disease finally discovered. For example, it is proposed that the finding of a trace of glycosuria be ignored unless it is accompanied by a high blood sugar level. Albuminuria in young adult females should also be ignored in screening surveys. Another way to minimize non-productive referrals would be to have the survey team repeat tests if results are borderline.

If the screening were set at a somewhat finer level than was the case in this pilot operation it is estimated that approximately 10 per cent of an apparently well adult population would be referred for definitive diagnoses. Approximately one out of three of these would be found on follow-up to have significant disease requiring continued medical care; in about half of the cases, this disease would be previously unknown. This return from a multiphasic screening survey is considerably greater than the usual experience in single-disease screening operations. When one considers the possibilities of further refinement of technique, more intensive follow-up (particularly in the case of suspected heart disease), and addition of other tests, e.g., hemoglobin determination, the value of the multiphasic screening procedure becomes even clearer.

99 South Ninth Street.

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Discussion by Roy O. Gilbert, M.D., *Los Angeles*

The multiphasic screening survey conducted in San Jose constitutes a type of project with which I am completely unfamiliar. I have been informed that that is the reason I have been asked to discuss this paper.

Of course, I am impressed with the ambitious nature of this survey which appears to point the way toward a diagnostic service on a mass basis that would be much in the nature of a movement to have all automobiles subjected to a multiphasic survey for defects that contribute to accidents. Such a survey should, of course, include the driver, and offers the possibility of preventing a lot of deaths and innumerable disabilities.

This pilot project has demonstrated a most commendable spirit of cooperation between the private practice of medicine and the official public health agency. From that standpoint alone I would consider the enterprise a highly successful one. However, the question may well be asked at this point, "How multiphasic can a multiphasic survey be and remain within the bounds of practical economy?" It is quite true that during the postwar years sociological thinking by a considerable and vocal segment of the population has developed a strong demand for expansion of public health services farther into the wide field of preventive medicine. In political circles a considerable progress has been indicated for support of such expansion at the federal level. If there is a corresponding phenomenon occurring at the local level, I must confess that I have failed to note its occurrence to any significant degree. Local governing bodies continue to resist the expenditure of local tax funds for public health service that might encompass an area of preventive medicine beyond the scope of the recognized basic public health services. Private medicine has contributed in no small measure to this attitude because of the spectre of "state medicine." Significant gains in development of a comprehensive program to improve total community health have been seriously retarded by this attitude. Projects such as the multiphasic survey at San Jose will serve to dispel the feeling of distrust and suspicion that private medicine has held toward public health and at the same time produce an awareness of local governing bodies to the magnitude of the total health problem of the local community. Such projects will demonstrate most forcibly that the functions of private medicine and public health supplement each other and are not in any sense competitive. It can be demonstrated that cooperative effort will tremendously enhance the effectiveness of each field of medicine toward achieving a vastly improved total community health without interference with the normal processes of private enterprise.

I confess to a feeling of keen anticipation toward the developments that this multiphasic survey portends and the community benefits to be derived from a more intelligent and coordinated use of community health resources.

Discussion by Dwight M. Bissell, M.D., *San Jose*

There are several important facts which Dr. Canelo has brought out in his discussion of the multiphasic survey which was done in San Jose. There are many other factors which are less significant to the discovery of diseased conditions, but important from the viewpoint of public health administration.

While we have no knowledge of the amount of morbidity due to diabetes in this city, the mortality increased from 15 deaths due to diabetes in 1947 to 25 deaths due to diabetes in 1948. I do not believe that this is an error due to the small numbers being handled, because we have had a slight increase over previous years. In 1943, for example, 12 deaths were recorded, 18 another year. Consequently, we are led to believe that probably we are having an increase in the incidence of diabetes or that persons who have had diabetes for a number of years have had it under control but are now reaching an age when therapy is no longer effective in preventing death. Diabetes in our community is now among the first ten causes of death. Consequently, we feel that it is an important public health problem and if it is amenable to preventive measures, they should be used, provided cases can be found.

One of the large problems in this survey was to secure cooperation of many agencies including private industry. When the survey was suggested to us as a possibility, we immediately contacted the official representatives of the county medical society to see if they were interested in conducting such a survey. After due consideration, we all agreed that the county medical society, State Health Department and our city health department would be the logical agencies to conduct such a multiphasic survey. The problem was then one of securing time-off for people who were working in industry to have these tests made. Some of the employers had to be convinced that it would be valuable to the industry for their employees to have this information. It was definitely understood in advance that this information would not be given to the employers, but would be sent to the employee's private physician. The patient-physician relationship, therefore, would be protected completely. The employer would get a summary of the findings for his plant, but would not be given information about individuals in it.

The assembly-line approach to taking these specimens for examination made the absence of an employee from work a relatively small item, but from the time he left his desk or bench and returned to it, approximately a half-hour had elapsed. In one plant where four or five hundred persons were employed, it meant that these tests would cost the employers several hundred dollars in lost work. However, eventually, by working through the plant physicians and personnel directors, we were able to secure the consent of the employers.

The next problem from our viewpoint was that of educating the employee to be willing to accept this testing service. The health education division of our department prepared a number of materials in cooperation with the personnel divisions of the plants and used about every device including plant newspapers, bulletin boards, flyers, local newspapers, information questionnaires, preliminary sign-ups, and many other devices to secure employee participation, since this was a voluntary program. It was found that the participation generally depended on the attitude of the foreman or the immediate superior of the employee. The foreman would usually be asked if he thought it were worthwhile to be stuck in the arm in order to secure this information. So it was very obviously a question of selling the plant foreman on the survey. In most of the plants the participation was very high; however, in one plant a lay-off was announced shortly before the survey was to be made and there was some feeling among the employees that persons to be laid off might be selected on the basis of the results of the tests that were to be made, even though it had been emphasized that all individual findings would be confidential.

The Santa Clara County Tuberculosis Association participated by permitting us to use its x-ray equipment in the plant for the x-raying process. Luers and other equipment were borrowed from the State Department of Public Health for the few days of the survey. Laboratory specimens were transported by messenger, as soon as they were taken, to the laboratory where they were either examined or carefully stored until they could be examined. The city public health laboratory staff was augmented and a night staff was employed to make it possible to carry on our regular public health laboratory work without interference.

In the questionnaire and identification card for each person tested, he was asked to name a family physician to receive information of any abnormal findings that the patient might have. Persons with negative results were so notified. They were instructed that this check-up did not constitute a complete examination so that they would not have a false sense of security in case they might be suffering from other diseases which would not show up abnormalities in this battery of tests. A person who had something abnormal in his findings was simply told to consult the physician he had named in his questionnaire. The physician was sent a complete report of the findings of the survey on this particular person in advance of the time that the person could arrive at the office. In this way the physician had advance knowledge as to why we had requested the person to see him. The follow-up on these persons with abnormalities was handled through the public health nursing staff of our department with the assistance and cooperation of the executive secretary of the county medical society. The executive secretary contacted all physicians who had been named, to find out if the person had reported. He gave the health department a list of those persons who needed to be visited to get them into the physician's office.

A committee of the county medical society arranged for lectures by Dr. Howard West of Los Angeles on the subject of diabetes and provided some other materials for physicians who wished it in methods of follow-up on the screening tests to determine whether a patient actually had diabetes and needed treatment. Consultation service was available through private physicians.

While the multiphasic screening test has been demonstrated as a means of detecting particularly diabetes, nephritis, and tuberculosis (since 13 previously unknown cases were picked up in this survey), to me it is equally significant that four community agencies, namely, the county medical society, the county tuberculosis association, the State Department of Public Health, and a city health department can work together with combined efforts to secure a desired result. It was a demonstration of what teamwork can do in the matter of discovery of disease as well as the follow-up of cases. I believe that it also demonstrated to the management as well as the employees of these plants that the medical profession is interested in prevention of disease through its early discovery. A great deal of the success of this multiphasic survey is attributable to the untiring efforts of Dr. Canelo who spent many long hours working out details. It has been a project with many contributors, all working to a successful conclusion.

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The Preparation and Sterilization of Ophthalmic Solutions

MICHAEL J. HOGAN, M.D., *San Francisco*

SUMMARY

Ophthalmic solutions should be prepared and preserved according to whether they are to be used in surgical procedures, in the clinic or office, or by the patient at home.

There is an optimum pH level at which the solutions of individual drugs should be buffered in order to obtain the maximum efficiency and stability.

Deterioration of the drugs used is greatly diminished when they are dispensed at the proper pH.

Quaternary ammonium chloride solutions in proper strength have been shown to be adequate for the preservation of ophthalmic solutions.

EXCELLENT work has been done in recent years to clarify the factors which influence the irritation, stability, absorption and sterility of ophthalmic medications. Most of the published reports of this work have appeared in pharmacologic journals, except for those on studies of individual drugs, which have appeared in the ophthamologic literature.

The development of more effective antiseptics has aided materially in the preservation of ophthalmic solutions used in surgical procedures and by patients. It has been found that there is a good deal of conflict in the ophthalmic literature concerning both the preservation and sterilization of these medications. A number of articles state that it is permissible to autoclave surgical solutions after they are prepared. These reports have neglected to indicate the probable deterioration which occurs in many solutions after the application of heat. It is felt that a review of some of the more recent excellent work on the preparation and sterilization of these solutions will be valuable to ophthalmologists.

Ophthalmic solutions should be prepared and preserved according to whether they are to be used: (1) In surgical procedures; (2) in the clinic or office; (3) at home.

Those solutions which are to be used in the office, at home, and by the patient, may be prepared as indicated later in this presentation. It is considered satisfactory to add a preservative, since the medication is used for a very short period. Surgical solutions should be prepared with great care, and necessary precautions should be taken to insure their sterility.

IMPORTANT FACTORS IN PREPARING SOLUTIONS

The ideal ophthalmic solution should be sterile, non-irritating, stable, and active. The effect of individual drugs upon the eye is influenced by dilution by the tears, precipitation of the basic drug or a salt by tears and mucus, the reaction of the tissues and tears, the reaction of the drug, and by the concentration and frequency of use of the drug. The last two factors are considered as most important, since they are the qualities which can be altered most easily.

The *reaction* of the medication used is very important and numerous articles have been presented to show the influence the pH has on optimum absorption of drugs. However, it is not always possible to adjust the pH of a solution so that it will be absorbed properly. Its chemical stability and the irritation caused by contact with the eye may require alteration of the pH to a slightly less desirable level. Therefore, it must be accepted that there is an optimum pH level at which the solutions of individual drugs should be buffered in order to obtain the maximum efficiency and stability. It has been stated that ophthalmic solutions should be buffered to have a pH equal to that of the tears. This statement should be modified when one must consider the stability of the solution and the equilibrium constant of the free alkaloidal base. It has been shown that the physiologic effect of aqueous solutions of acid salts of active bases is related to the concentration of free base, and not to that of the ionized salt.[5] The irritation produced by most of these drugs is correlated with the concentration of the free base and can be controlled by lowering the pH of the solution.

The *stability* of solutions is especially important, since Blok[2] found a 44 per cent decomposition of 0.5 per cent atropine solution and 89 per cent decomposition of a 1 per cent homatropine solution in one month when they were dispensed at pH 8.3. Deterioration was less than 20 per cent when they were dispensed at pH 6.8. In general, slightly acid solutions of ophthalmic drugs are more stable and effective. If they are too acid, the free base is quite irritating. Other medications may be used at a higher pH because their bases are less irritating.

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An additional consideration in adjusting the reaction is the relation between the pH of the solution and absorption by the eye. Fischer[4] showed that absorption of a 1 per cent atropine solution at pH 4.0 is only a third as great as it is at pH 7.5. A change in pH from 4.0 to 7.5 decreased the absorption of 0.5 per cent pilocarpine by 50 per cent. It has also been shown that changing the pH of 1 per cent cocaine solution from 3.2 to 8.7 increased its absorption sevenfold.

Wetting agents, which decrease the interfacial tension between air and liquids, and make the contact between solutions and membranes more intimate, promote greater absorption of many drugs. Carbaminoylcholine chloride, which is poorly absorbed in aqueous solution by the cornea, provides a good example. The addition of a wetting agent results in more constant and dependable absorption of the drug.

Osmotic pressure need not be taken into consideration in the preparation of most ophthalmic drugs. The tears are isotonic with a 0.9 per cent solution of sodium chloride. The eye, however, tolerates solutions having varying osmotic pressures (0.5 to 2 per cent).[8] A few drops of medication introduced into the conjunctival sac have a very transitory effect on the osmotic pressure.

BUFFER SOLUTIONS

Before proceeding to discuss the preparation of various solutions it is necessary to say a few words about buffer solutions. Buffers are certain salts which, when dissolved in water, resist a change in pH on the addition of a small amount of acid or base. The salts of weak acids, such as phosphoric acid and acetic acid, are called buffer salts. The same applies to the salts of weak bases. The addition of a relatively large amount of buffer salt in proportion to the amount of acid or base causes a fractional decrease of buffer ion. Buffer ion unites with H-ion to form the slightly dissociated acid corresponding to the buffer salt employed. The decrease in buffer salt is so slight that the H-ion concentration is fairly constant. Gifford stated that the addition of drugs to buffers does not modify their reaction more than pH 0.2. Hind and Goyan[9] have emphasized that different buffer systems have different capacities. Their capacity depends on the concentration and pH range of the system used. The Gifford buffer system has a high buffer capacity and should be used in the range pH 8-10. Below this range it has a tendency to become more alkaline on standing, due to liberation of carbon dioxide.

The most satisfactory borate buffer is that of Palitzsch, as modified by Goyan, Enright and Wells.[6] It is stable and has a buffer range between pH 8 and 10.

Sorensen's phosphate buffer system has a wide and practical usage. It is the one which is most commonly used in the University of California Hospital pharmacy. This system has a buffer range of pH 5.8 to 8. It is incompatible with zinc salts. It controls the pH of many ophthalmic drugs at the isohydric point of the tears.

PREPARATION OF VARIOUS SOLUTIONS

Atropine, homatropine, pilocarpine, eucatropine, and scopolamine should be dispensed in a phosphate buffer solution at pH 6.8. Hind and Goyan found only 10 to 20 per cent loss in activity of these drugs after 30 days. These drugs are made up in a solution of the desired strength, and quaternary ammonium chloride (Zephiran®, Phemerol®) is added so that the final solution contains a 1:10,000 concentration of this antiseptic.

Cocaine, pontocaine, procaine, and zinc should be dispensed in a weak boric acid solution at pH 5. Quaternary ammonium chloride is added to 1:10,000 strength. Boric acid is used so that when the drops come in contact with the tears they are buffered to about pH 5.0. Eserine solutions decompose by hydrolysis and oxidation. The oxidation products maintain the therapeutic activity of eserine but become irritating. If the pH of eserine is maintained at around 5 it is less irritating and more stable. Eserine solutions are prepared in the desired strength with boric acid. Sodium sulfite 0.1 per cent and phenyl mercuric nitrate to 1:100,000 concentration are added. Sodium sulfite is added as anti-oxidant.[9] Zinc salts are soluble and must be maintained below a pH of 6. Above this pH they form basic complexes of zinc, reducing the zinc ion concentration. The zinc salt is made up to desired strength in 2 per cent boric solution and preserved with quaternary ammonium chloride.

The sulfa drugs are precipitated at a pH below 8.2. They may be buffered with a borate buffer to pH 8.6 and preserved with quaternary ammonium chloride. Penicillin is unstable in the range below pH 4.8 and above pH 7.9. A phosphate buffer may be used to buffer the solutions at 6.5.

Florescein,® soluble, is stable but extremely liable to contamination by certain Gram-negative bacteria. The solution should be made up to desired strength containing 1:10,000 quaternary ammonium chloride. If this drug is made up in a borate buffer the final pH is 8.4. A precipitate forms on addition of the preservative but this incompatibility does not affect the usage or action of the drug. There is good evidence that this preservative is effective in preventing contamination of solutions used in office and clinic, provided the solutions are not kept too long. Solutions used in operations, however, should be autoclaved to insure sterility.

STERILIZATION

The most desirable method of maintaining sterility of ophthalmic solutions is by the addition of an inert, non-irritating, bactericidal and fungicidal agent which is compatible with the drug in use. One must strike a mean between that which is ideal and that which is practical. The only real way to have sterile solutions is to prepare them in ampules which may be sterilized in the autoclave. This method is costly, time-consuming, and wasteful, for there is always some deterioration and a portion of the solution remains in the ampule after use. Another method is to have the solutions properly prepared and placed in 20 cc. sterile rubber-capped vials.[7] The solutions may be withdrawn into a hypodermic syringe and used as needed. The objection to this method is the deterioration which occurs on standing. The third and most commonly used system is to have the solutions in sterile bottles with screw tops. The required amount of solution is withdrawn with a sterile dropper. After the first usage the stock bottle should be considered unsterile. Cocaine solutions are partially self-sterilizing, but if they are to be used in connection with operations they should be placed in rubber-capped vials and sterilized by boiling for 30 minutes in a water bath. The water bath temperature should not be below 60° C. and not over 80° C. Solutions used in the office, clinic, or home should be prepared in as sterile a manner as possible and a preservative added. For office and clinic use the bottles should be covered with a screw top. At the treatment table sufficient drops for each patient may be withdrawn in small sterile droppers. A dropper should never be reinserted in a bottle, and droppers used for atropine, scopolamine, and homatropine should be segregated from those used for other solutions.

The most desirable method of maintaining sterility in ophthalmic solutions is to add quaternary ammonium chloride solution. Skolant[11] has shown that it maintains the sterility of solutions which are used in surgical procedures. This antiseptic is satisfactory provided it is not used in too high a concentration. Swan has shown that 1:1,000 Zephiran® chloride is very irritating to the human conjunctiva, and produces edema and desquamation. A 1:3,500 solution produced some conjunctival and corneal changes which were reversible.[10] It is probably safer to use a 1:10,000 solution for preservation of ophthalmic solutions. Eserine and the Gifford buffers are incompatibile with this antiseptic. In addition to being a good sterilizing agent, this drug also acts as a wetting agent, aiding absorption of the drug.

All chemicals used to prepare ophthalmic solutions should be as chemically pure as possible. All vials, bottles, and caps should be washed with soap and water, thoroughly rinsed and autoclaved. Graduates, stirring rods, and containers should be sterile. Bottles used in office and clinics should be amber-colored to prevent deterioration of the drug. Drops for patients with glaucoma should be prescribed in small amounts, placed in amber bottles, and replaced at least monthly.

The author wishes to thank Mr. Jerome Yalon, pharmacist at the University of California Hospital, for his advice and assistance in preparing this presentation.

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Discussion by MAURICE W. NUGENT, M.D., *Los Angeles*

First I would like to recommend the two chapters in Remington's "Practice of Pharmacy" (9th Edition) on isotonic solutions and collyria. This book is practical, well written and full of excellent reference. It is just as necessary for pharmacists to recognize this problem as it is for ophthalmologists in order that prescriptions be filled according to recommended procedure. The basic principle must be set down for all concerned to follow.

All eye solutions must have clarity and be free of foreign particles and precipitates. An all-glass sintered-disc buckner funnel is excellent for this purpose. This filter will also remove bacteria and is one way of achieving bacterial sterilization. The funnel must be sterilized, of course. This funnel also has a choice of porosity.

Dr. Hogan has covered the buffering of eye solutions and I have nothing significant to add other than to recommend Gifford's buffer solution and to state these are approximately isotonic with lacrimal fluid and therefore serve a double purpose. The other buffer tables which Dr. Hogan mentioned must also be recommended, but it seems that pharmacists are much better acquainted with Gifford's buffer solutions, and consequently I for one feel more secure using these.

Preservatives are also a necessity because of refrigeration not being practical. Zephiran® or Phemerol® have proven themselves to be excellent and should be used wherever indicated.

Another point to be recommended is the use of multiple droppers, rather than the dropper bottle, for the obvious reason of contamination. It is most wise to keep only small quantities of medication on the treatment table and to discard these and re-sterilize the bottles at the beginning of each week. Medications used in the surgery should be dispensed in individual dosage ampules despite the extra cost.

CASE REPORTS

- Giant Meningioma
- Thrombin in the Control of Upper Gastrointestinal Hemorrhage
- Death from Metastatic Melanoma Thirty-six Years After Removal of Probable Primary Ocular Tumor
- Tetraethylammonium Chloride in Post-Herpetic Neuralgia
- Stellate Block for the Relief of Simultaneous Angina Pectoris and Motor Aphasia

Giant Meningioma

Frank W. Lusignan, M.D., Glen O. Cross, M.D., and
Lawrence H. Arnstein, M.D., *San Francisco*

The successful removal of a 301-gm. meningioma led the authors to a review of the literature on the subject of giant intracranial tumors. It was found that relatively few had been reported, with the largest being the 398-gm. meningioma reported by Carrillo of Argentina in 1937.

It is believed that the presentation of the pertinent information found in this review of the literature (Table 1) will be of value to those who in the future may become interested in the subject by reason of having successfully removed large intracranial tumors.

The tumors included in this tabulation are those weighing 230 gm. or over that were successfully removed as primary growths. There are several recurrent, secondary meningiomas reported that are larger than the primary tumors listed herein. The largest of these is the 404-gm. meningioma (also reported as 430 gm.) which was removed by Cushing[6] at the fourth operation on a patient. Cushing reported a similar meningioma weighing 400 gm. removed at the eighth operation on a patient who had a total of 1,350 gm. of tumor tissue removed in a series of 11 operations over a period of 12 years. This tumor was reported in Cushing's monograph "Intracranial Tumors"[5] as weighing 1,475 gm. Cushing also reported a removal of a 341-gm. glioma[7] and a 341-gm. round cell sarcoma[4] with operative deaths. Davidoff[8] reported an 835-gm. meningioma but it was composed largely of hyperostosis of the skull with relatively little intracranial tumor.

CASE REPORT

A 42-year-old, white, pattern maker entered the hospital July 24, 1946, in a disoriented state with right hemiparesis and a history of convulsive episodes of one month's duration. He had apparently been in good health until June 1944, at which time his family noticed that he was becoming careless of his person and in his habits. He began to show progressively poorer judgment in all matters, began excessive use of alcohol and complained of loss of vision, especially in the left eye. In the ensuing two years a steady decline in intellect was apparent and there were increasingly frequent episodes of irrational behavior. The patient was hospitalized in Portland, Oregon, where in June 1946 he had the first of a series of convulsive seizures and unconsciousness. These seizures were of a tetanic nature and were generalized but were more severe and extensive on the right side of the body. Almost complete right hemiplegia then developed. When first observed by the authors the patient was semi-conscious and disoriented and he appeared somewhat older than the stated age. There was bilateral exophthalmus, more pronounced on the left. The right hemiplegia was associated with an inconstant Rossolimo's sign and increased reflexes. The left eye was blind and there was no

Table 1.—*Data on Cases in Which Intracranial Tumors weighing 230 Gm. or More Were Successfully Removed.*

Surgeon	Tumor Size	Date of Operation	Sex, Race and Age	Duration of Symptoms	Initial Symptoms	Location of Tumor	Pathological Diagnosis
Carrillo, R.[3]	398 gm.	9/30/37	Male, white 13 yrs.	3 months	Sub-occipital headache	Right parietal	Fibrous meningioma
Pilcher,[13] Cobb	374 gm.	11/25/41	Male, white 25 yrs.	15 months	Headache Failing vision	Right occipital	Fibroblastic meningioma
Hoen,[10] T. I.	341 gm.	10/10/33	Male, white 15 yrs.	24 months	Headache Vomiting	Left frontal	Fibroblastic meningioma
Cushing, H.	340 gm.	12/ 7/25	Male, white 30 yrs.	48 months	Frontal Headache	Right fronto-parietal	Collagenous meningioma
LeFever,[11] H.	310 gm.	8/ /37	Female, white 37 yrs.	12 months	Enlargement of head	Right parieto-temporal	Not given
Lusignan, F.	301 gm.	7/26/46	Male, white 42 yrs.	24 months	Poor judgment Alcoholism	Left frontal	Fibrous meningioma
Bramann,[1] V.	270 gm.	5/ 2/92	Male, white 29 yrs.	12 months	Headache Vertigo	Right frontal	Not given
Cairns,[2] H.	250 gm.	7/25/33	Female, white 17 yrs.	Not given	Headache Visual loss	Left frontal	Not given
Cushing, H.	230 gm.	11/30/31	Male, white 32 yrs.	36 months	Headache Visual loss	Right fronto-temporal	Fibroblastic meningioma
DeMartel,[9] T.	230 gm.	4/13/34	Female, white 9 yrs.	12 months	Headache Vomiting	Right parieto-temporal	"Meningoblastoma"

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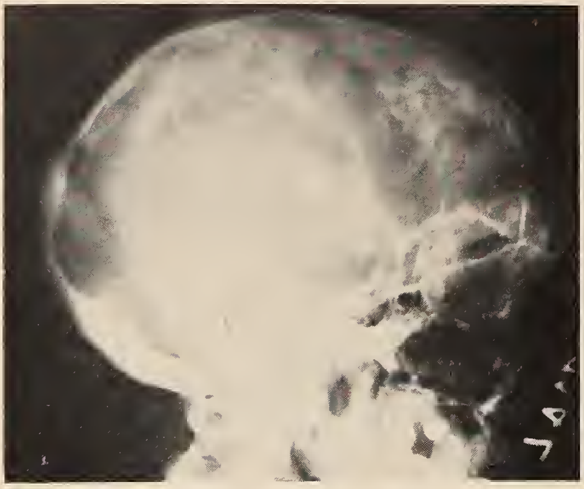

Figure 1.—Ventriculogram showing posterior displacement of the left anterior horn of the lateral ventricle. Erosion of the sella turcica, supraclinoid calcification and bone changes of the left frontal skull were noted.

pupillary response to direct light. There was impairment of vision in the right eye with an irregular visual field constriction. The left optic disc revealed advanced atrophy. There was no papilledema on the right, but fullness of the retinal veins was observed bilaterally. There was lateral deviation of the left eye. Due to the mental state of the patient, results of a sensory examination were not valid, but there was equal response to painful stimuli applied bilaterally and coordination was equally impaired on both sides. Percussion note over the left anterior half of the skull was duller than elsewhere. No bruit was heard on auscultation of the head. The patient's behavior, which was on a psychotic level, was typical of impairment of the frontal lobe of the brain.

Roentgenograms of the skull revealed pronounced changes of the inner table of the left anterior skull. On July 26, 1946, a ventriculogram revealed posterior displacement of the frontal horn of the left lateral ventricle (Figure 1). The plane films had shown marked erosion of the pituitary fossa and clinoid processes with calcification in the suprasellar region as well as anterior to it, lying chiefly to the left of midline.

Operation: Under endotracheal anesthesia a left frontal osteoplastic flap was marked out about 1 cm. medial to the midline, extending back in a circular manner to a point about 2 cm. anterior to the crus of the helix of the left ear. The scalp and the bone were exceedingly vascular and much time was consumed in obtaining hemostasis. On reflection of the bone flap the dura was seen to be blue and extremely vascular. The tumor mass was seen as soon as the dura was opened and from a frozen section it was identified as meningioma. By palpation the mass was found to extend well beyond the margin of the flap. By electrocautery a 3-cm. square portion of the tumor was excised from the mass. The tumor mass was then separated by careful finger dissection and suction from the surrounding brain tissue and removed in one piece. This was an exceedingly tedious and time-consuming procedure and there was profuse loss of blood. Maximum difficulty was encountered at the base of the falx anteriorly where the mass appeared to be attached. After hemostasis was accomplished the tumor bed was irrigated with saline. With the remnants of the frontal lobe replaced, there remained a dead space of 2x2x3 cm. The abnormal dura and bone were removed and a thin piece of tantalum foil was placed over the exposed area. The pericranium and galea were approximated with interrupted silk sutures. The skin was closed with No. 40 cotton. Fifteen transfusions of whole blood, 500 cc. each, were given during the operation and in the 24 hours following it.

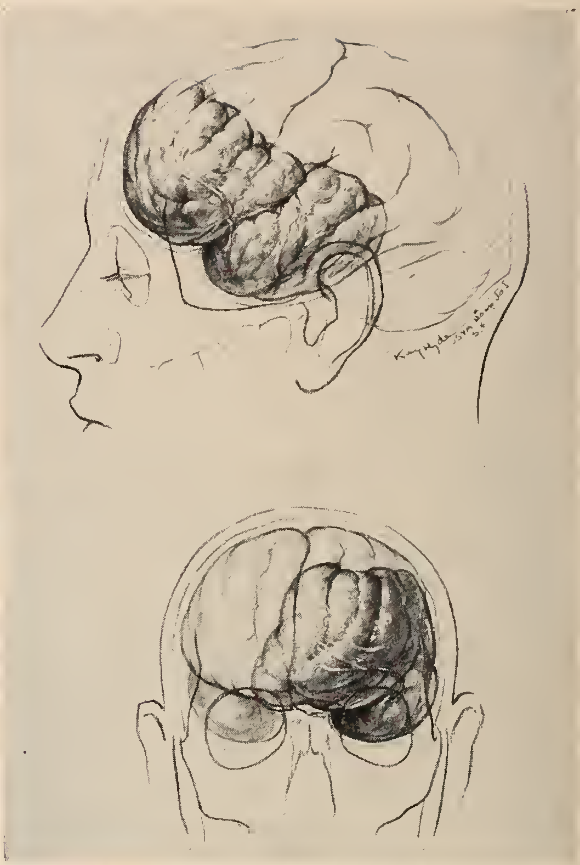

Figure 2.—Artist's drawing to show the shape and location of the tumor in relation to the skull and brain.

The tumor was a somewhat nodular mass weighing, with the excised piece, 301 gm. Microscopically it was a fibrous type of meningioma with psammoma formation. The approximate size and location are shown in the sketch (Figure 2).

Postoperative Course: After the immediate effects of the operation were overcome the patient progressed remarkably well. Three weeks later tantalum cranioplasty for repair of the bony skull defect was done.

The patient's vision improved to the point that he could read and write within a month. The hemiplegia gradually cleared with a residual mild right hemiparesis. Memory gradually improved and the patient became neater in personal habits. At the time of discharge from the hospital he was doing odd jobs about the ward and spent a great deal of time singing and was disposed to jocularity.

DISCUSSION

The striking thing about massive intracranial tumors is the relatively late appearance of the symptoms. This is attributed to the remarkable ability of the brain to compensate for the slow development of the mass, and, in younger patients, to the distensibility of the skull.[3, 14] Bone changes such as were observed in the roentgenograms of the skull in the case here reported were reported to have occurred in 25 per cent of the cases in Cushing's series.[12] In speaking of the convexity meningiomas, Cushing[6] said: "We found that in almost every instance in retrospect it might have been possible to determine the tumor's locus of origin before operation by its vascular effects on the bone."

The large amount of whole blood given the patient (7,500 cc.) more than replaced the total blood volume (6,300 cc. for an average 150-pound man). White[15] has commented on the fact that the blood loss in the removal of a large meningioma exceeds that of almost any other operative procedure. In this instance there were no apparent harmful effects of this total blood replacement.

SUMMARY

The successful removal of a 301-gm. meningioma is reported.

The literature is reviewed and the pertinent information concerning the largest reported intracranial tumors is tabulated.

The replacement of the patient's total blood volume is commented on.

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Thrombin in the Control of Upper Gastrointestinal Hemorrhage

Report of Three Cases

R. L. Byron, Jr., M.D., John McGee, M.D., and
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THREE patients with massive upper gastrointestinal hemorrhage have been treated with a solution of thrombin with favorable results. The use of thrombin was a supplement to the usual forms of treatment and in no way took the place of any of the accepted measures in the control of severe bleeding.

REPORT OF CASES

Case 1: A 48-year-old man entered the San Francisco Hospital January 29, 1948, twelve hours after vomiting about a quart of bright red blood. There had been two large hematemeses in the preceding ten months. The source of bleeding was not known. The patient had consumed a quart of whiskey daily for many years. He had no symptoms to suggest a peptic ulcer. The patient was obese, sallow-complexioned and in a state of acute alcoholism. The liver was palpable four finger-breadths below the right costal margin and was hard and nodular. There were prominent veins over the epigastrium. The hemoglobin content of the blood was 7.5 gm. per 100 cc. The stool was strongly positive for occult blood.

Several hours after entry the patient vomited 400 cc. of blood. He became exceedingly pale and apprehensive and perspired profusely. Although the blood pressure did not change, the pulse rate rose from 70 to 140. Sedation and transfusions of blood and plasma did not arrest the downhill course. Fibrin foam and thrombin solution were given. There was no evidence of further bleeding and the patient was discharged after 14 days in the hospital. Laboratory tests showed an icteric index of 7, thymol turbidity of 2 units, cephalin flocculation of 3 plus. Roentgenograms of the upper gastrointestinal tract on the tenth day after thrombin was given revealed no evidence of intrinsic disease in the esophagus, stomach or duodenum. Since this episode, the patient has had two further admissions for cirrhosis and ascites without further evidence of bleeding.

Case 2: A 31-year-old man entered the hospital May 4, 1948, with chills and fever of two days' duration. He had lived in the Orient and in South America. He indulged in frequent alcoholic bouts. He never had had any ulcer symptoms. On admission the temperature was 100.6° F. Blood and urine examinations revealed nothing until plasmodium vivax organisms were found on the sixth day. Early the same morning he had a severe hematemesis and then began to have tarry diarrhea. Bleeding continued for the next 17 hours and the patient's condition became progressively worse in spite of transfusions of 1,000 cc. of red cell mass, 1,000 cc. of whole blood and general supportive therapy. Just before the administration of thrombin solution, he appeared moribund although he still would obey simple commands. Pulse and blood pressure were unobtainable. The patient had an extremely sensitive gag reflex and repeatedly vomited fibrin foam pledgets which were given on a thread to hold them at the proper level. Because of this, he was given 20 cc. of thrombin solution orally in 1 cc. doses every minute or two. The improvement was striking. Bleeding stopped and the hemoglobin content, which had fallen from 15.8 gm. per 100 cc. to 8 gm., was back to 11 gm. at the time of discharge two weeks later. X-ray studies on three occasions since this episode have revealed no abnormality.

Case 3: The patient, a man 44 years of age, entered the hospital April 25, 1948, because of massive hematemesis and weakness. Five years previously he had been admitted for gastrointestinal hemorrhage with massive hematemesis, melena, shock, and reduction of hemoglobin to 8 gm. per 100 cc. At that time he was given transfusions and made an

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uneventful recovery. In the interim he had had no ulcer symptoms, and he continued to drink very heavily. Twenty-four hours before the present entry bleeding began again and soon after admission the patient went into shock. The blood pressure fell to 65 mm. of mercury systolic and 40 mm. diastolic, and the pulse rate rose to 120. The condition of the patient appeared very poor despite transfusions of 500 cc. of plasma, 500 cc. of red cell mass, and 500 cc. of whole blood. After the administration of fibrin foam and the thrombin solution, there was immediate improvement and no evidence of further bleeding. The patient was discharged three weeks after admission. Results of liver function tests suggested slight liver damage. Esophagoscopy revealed no abnormality. Repeated x-ray studies showed no gastrointestinal disease until a duodenal ulcer was discovered six months after this episode.

COMMENT

Each of these patients was failing so rapidly that a fatal outcome seemed inevitable. The use of thrombin in gastrointestinal hemorrhage has been described by Daly,[1] and it was utilized in these cases as a measure of desperation. Because it was felt that there was a reasonable possibility that the bleeding might be from esophageal varices, the thrombin was given with fibrin foam in two of the cases. Three small pledgets of fibrin foam were tied to a cotton thread one inch apart. The patient was persuaded to swallow these and the thread was anchored to the cheek so that the pledgets would lie in the lower end of the esophagus. The patient was then allowed to take small sips of thrombin solution (2,500 units in 20 cc.) every two minutes. Twenty-four hours later the thread was cut and the pledgets were allowed to pass on through. In one case (Case 2) an attempt to apply this technique was unsuccessful because the patient repeatedly vomited the pledgets as well as large amounts of blood. Instead, the patient took sips of thrombin solution at two-minute intervals. Before the thrombin solution was given, Amphojel® was administered in order to buffer any free acid which might be present. The authors were unable to establish a diagnosis of esophageal varices in any of the three cases. Ultimately one patient was proved to have a duodenal ulcer.

One additional patient was treated with thrombin solution given through a Levine tube which was in place. This patient was an alcoholic who had had a gastric resection for a large ulcer on the lesser curvature of the stomach. Dilated veins made the procedure technically difficult. The liver appeared cirrhotic. Twenty-four hours after the procedure, bright red blood returned from the suction tube. In spite of conservative therapy the course was progressively downhill and thrombin was given as a supplementary measure. After irrigation of the stomach with saline solution, 30 cc. of Amphojel® and 20 cc. of thrombin solution were administered through the tube, which was then clamped off. Following this procedure, the patient improved rapidly and showed no further evidence of active bleeding. He was discharged on the fourteenth postoperative day.

SUMMARY

Three cases are presented in which massive upper gastrointestinal hemorrhage of undetermined cause was treated with thrombin solution either alone or in combination with fibrin foam. The favorable results suggest that the solution of thrombin may be an adjunct to conservative medical therapy.

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Death From Metastatic Melanoma Thirty-six Years After Removal of Probable Primary Ocular Tumor

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The appearance of long delayed metastases following enucleation of the orbit for malignant melanoma is a feature peculiar to this tumor. When confronted by a patient with a large nodular liver and an artificial eye replacing the orbit removed several years before, one should suspect a metastatic melanotic tumor to be invading the abdominal organ. Such a diagnosis was made in a patient who had generalized tumor masses 35 years after removal of the orbit. As this interval is one of the longest on record, the case is considered worthy of reporting. Another remarkable feature was that the patient had had a metastatic melanotic tumor removed nine years previously and then was free of further metastases for seven years until the present illness.

CASE REPORT

A 60-year-old Caucasian housewife was first admitted to the hospital February 2, 1947, complaining of left chest pain of two years' duration. Roentgenograms taken early in 1946 were said to have revealed a mass behind the heart shadow. A tumor of the left side of the neck was removed at that time. Later a slide made from a section of the tissue removed at that time was obtained. It showed that the growth removed was a metastatic melanotic tumor. The section resembled the biopsy specimen taken by the author when there was recurrence of a mass at the same site.

In 1938 a simple left mastectomy was performed because of a tumor of 18 months' duration. This tumor had gradually increased in size but was not associated with other symptoms. The hospital summary reported the findings of an obese patient with an artificial right eye and a normal chest except for the breast tumor. No axillary nodes were felt. No abdominal masses were noted. The pathologist reported that the tumor was the size of a large walnut and contained black pigment. Microscopically there was much fibrous tissue with islands of tumor cells and much pigment. No mitoses or lymph nodes were found. A diagnosis of melanoma was made.

The patient stated that in 1912, when she was 25 years of age, the right orbit had been removed about one year after the onset of progressive loss of vision. Unfortunately, a report of the findings was not available, but the patient said the eye was removed because of a deep-seated tumor, which is presumed to have been a melanoma.

The mother of the patient died at the age of 32 years with carcinoma of the breast.

Inquiry elicited no history of cough, hemoptysis or edema. There were no previous gastrointestinal symptoms or bleeding, and no genito-urinary complaints. Menopause had occurred nine years before and there had been no recurrence of bleeding.

The patient was obese, and apparently chronically ill but in no acute distress. It was evident that she had lost weight. The body surface was later carefully examined but no lesions of primary malignant disease were found. There was no evidence of recurrence of malignant growth around the right eye. The left eye was normal, as were the nose and throat. In the left supraclavicular area, a 5 by 3 cm. mass of rubbery non-tender nodes was felt. The right side of the neck was free of tumor. The mastectomy scar showed no recurrence of tumor and no axillary nodes were felt. The epitrochlear and inguinal nodes were not enlarged. The

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right breast contained no tumor. The left lower ribs were tender. There were dullness, decreased fremitus and diminished breath sounds over the base of the left lung. The heart appeared enlarged with the apical thrust in the anterior axillary line. The blood pressure was 140 mm. of mercury systolic and 70 mm. diastolic. The heart sounds and rhythm were normal. The abdomen was protuberant and soft without tenderness. A large non-tender mass in the splenic area, moving with respiration, extended downward to the level of the umbilicus. The liver edge was felt four fingers' breadth below the right costal border. It was smooth and not tender. A mass was felt in the suprapubic area. A large mass in the right buttock was felt through the rectum.

The hemoglobin content of the blood was 10 gm. per 100 cc. Leukocytes numbered from 8,500 to 11,000, with 80 per cent polymorphonuclear cells, 14 per cent lymphocytes and 6 per cent monocytes. The urine was amber colored, cloudy, acid in reaction with a specific gravity of 1.032 and a trace of albumin. The centrifuged sediment contained a few leukocytes. A chest film revealed a homogeneous density over the lower half of the left chest interpreted as probably due to tumor.

At this time, the history and reports of the eye tumor, the cervical mass and the breast tumor were not yet available so that a tentative diagnosis of metastatic carcinoma secondary to a breast malignancy seemed reasonable. Then the notation that the patient had an artificial eye, even though it had been worn for 35 years, suggested a consideration of metastatic melanoma in the differential diagnosis. With this in mind, the mass of nodes in the left neck was removed for pathologic diagnosis. At operation the nodes were seen to be deeply pigmented and the pathologist reported the tissue to be metastatic malignant melanoma.

The patient was discharged April 10, 1947, and was readmitted February 27, 1948. She had become bedridden in the interim with increased loss of weight and weakness. Examination revealed further spread and enlargement of the tumors. New growths were felt in the right side of the neck and in the left calf. The tumor in the right buttock had increased to the size of a grapefruit. The leukocyte count was 13,300 with 82 per polymorphonuclear cells. The urine was unchanged. It did not turn black after standing six hours. The patient died April 10, 1948. Permission for necropsy was refused.

DISCUSSION

Melanomas are generally considered the most malignant of all tumors because of very rapid and widespread growth once metastases appear. The spread is by lymphatic system and bloodstream, the latter being a late event and often absent until late in the course of the disease. When spread does occur, it is usually so extensive that hardly a tissue or organ escapes. For this reason, the prognosis is usually quite grave, the average duration of life being two to three years. Yet in some instances the outlook for life is not necessarily so grave as is usually stated. Following removal of an eye for a malignant melanoma, metastases, when they do occur, are said by Pack[2] almost invariably to lodge in the liver where they may not grow for as long as 10 to 20 years. What factors or mechanisms permit these metastatic cells in the liver or elsewhere to lie latent for this length of time are not known. They may be concerned with local tissue or organ insusceptibility or the development by the body of an environment unfavorable for the immediate multiplication and spread of neoplastic cells. Ewing[1] reported a case observed by Fisher and Box in which a large melanoma of the liver appeared 14 years after removal of a primary intraocular tumor. Ewing also cites a case reported by Albers in which local recurrence was noted 24 years after excision of a primary tumor.

Even though metastases have invaded the regional lymph nodes, removal of the primary tumor, the involved nodes, and intervening lymphatic channels may be followed by arrest of the disease. Pringle[3] reported on two personally followed patients who had not developed metastases 30 and 38 years, respectively, after radical resection of a cutaneous melanosarcoma and the involved regional nodes without further treatment or radiation. Wilbur and Hartman[4] cite a report by Wilder of a case in which the patient lived 32 years before metastases occurred.

SUMMARY

Twenty-six years after removal of the orbit for an intraocular tumor, a metastatic melanoma appeared in the breast.

Seven years after a simple mastectomy, metastatic melanomata appeared elsewhere.

The interval of 36 years betwen removal of the primary tumor and death from metastases is one of the longest reported for delayed metastases of malignant melanoma.

337 South Beverly Drive.

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Tetraethylammonium Chloride in Post-Herpetic Neuralgia

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THE following is a report of a case of post-herpetic neuralgia successfully treated with tetraethylammonium chloride (Etamon®). It is felt that the pronounced benefit the patient derived from the therapy warrants a trial of the drug in other cases of persistent post-herpetic neuralgia.

Beneficial results from the use of tetraethylammonium chloride in the pain of herpes zoster have been reported previously by Coller[1] and co-workers. Nine patients were treated. The best results were obtained in five patients whose symptoms were only of weeks' or months' duration. The other four, who had had post-herpetic pain for several years, were given a total of six to 13 intravenous or intramuscular injections each, with a total of 3,500 to 6,500 mg. tetraethylammonium chloride, spaced over seven to 17 days. Three of the four patients had only temporary relief; the fourth had 50 to 75 per cent sustained relief. No explanation could be found for the failure of the therapy in cases of long standing.

CASE REPORT

A 61-year-old white dishwasher entered the San Francisco Hospital complaining of severe abdominal and chest pain. He had been entirely well until August 1943 when herpes zoster developed, involving an area innervated by the seventh to eleventh thoracic nerves on the left side. The patient stated that the skin manifestations cleared promptly but that severe pain had persisted and he had to take codeine for relief of the pain. Intercostal nerve blocks kept him free of

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pain for 24- to 36-hour intervals. A course of x-ray therapy gave no relief. The patient entered the San Francisco Hospital for the first time in January 1947 when, during a bout of unusually severe pain, he took bichloride of mercury with suicidal intent. He was given the usual antidotes and was treated for pain with codeine and novocain intercostal nerve blocks. He reentered in June 1947 because he was taking 12 grains of codeine daily and feared addiction. Therapy consisted of intercostal nerve block and sedation.

On his most recent entry, June 1948, he was a whining, apprehensive old man, writhing with pain, pressing a hot water bottle against the left lower chest, oblivious to surroundings, and pleading to be relieved of pain. There were post-herpetic scars at the level of the left seventh to eleventh thoracic nerves. In this area gentle stroking of the skin caused the patient to scream with pain, but deep pressure was not distressing. Otherwise, results of neurological examination and laboratory tests disclosed no abnormalities.

The patient received the first intravenous injection of tetraethylammonium chloride on June 22. He was given 7 mg. per kg. of body weight, a total of 400 mg. There was an immediate drop in blood pressure, from 120 mm. of mercury systolic and 70 mm. diastolic, to 95/60, and the patient said he felt hot, faint and dizzy, had severe tingling and itching in the feet, and diplopia. Within five minutes the blood pressure had returned to normal and all other symptoms of reaction to the drug disappeared, except the diplopia which gradually subsided over the next two hours. The neuralgic pain began to diminish about six hours later and had completely disappeared seven hours after the injection. At this time the patient appeared as a friendly, smiling, jovial, ambulatory old man without complaints. There was no local hyperesthesia; sensitivity to pin prick was decreased over the scarred region.

One week later the pain suddenly recurred. Four cc. of the drug given intravenously gave relief within a few minutes. Further injections were given at two-, three-, four-, and six-week intervals because of recurrence of pain. In each instance the pain disappeared immediately after the injection. At the time of this report the patient had had no medication for two months and was working full time as a messenger. He had not taken codeine or other analgesics since the initial injection of tetraethylammonium chloride.

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Stellate Block for the Relief of Simultaneous Angina Pectoris and Motor Aphasia

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THE arterial circulation of the brain and the heart has been demonstrated to be somewhat under the control of the autonomic nervous system. Although there is no universal agreement, the general opinion is that the vasoconstrictor impulses to the intracranial and cardiac vessels are carried by the sympathetic nerves.

Stimulation of the stellate sympathetic ganglion causes a diminution of blood flow in the ipsilateral cerebral vessels,[4] whereas blocking that ganglion has the opposite effect. However, whether the slight intracerebral vasoconstriction produced by stellate ganglion or other sympathetic nerve stimulation is of clinical importance is controversial.

The type and magnitude of control over the cardiac vessels exercised by the sympathetic nerves has not been settled. However, most painful sensations arising in the heart are thought to pass through the cardiac nerves that enter the sympathetic chain from the superior cervical to the fourth thoracic ganglion.

Stellate ganglion block has been used with some success for relief of angina pectoris and cerebral vascular spasm. Theoretically, therefore, the procedure should be of value in a patient having both conditions simultaneously.

The patient whose case history is presented in following paragraphs had had numerous attacks of angina pectoris and in three of these he had had motor aphasia lasting several hours. The physiologic correlation of the neurovascular mechanisms of the brain and heart is as yet obscure. However, because of the almost simultaneous relief of both the motor aphasia and the substernal pain that followed a left stellate block in this case, one is led to conclude that there was a close relationship between these mechanisms.

CASE REPORT

The patient, a 65-year-old married, white male, was admitted to the neuromedical service of the Los Angeles County General Hospital on March 8, 1949, complaining of substernal pain and inability to speak.

During the past 12 years, the patient had had momentary attacks of sharp, retrosternal pain upon exertion. In 1945, he was found to have hypertension. He was first admitted to the same hospital in 1946 because of acute, anterior, myocardial infarction confirmed by electrocardiogram. At that time he had complained of severe, retrosternal pain which radiated to the right and left anterior chest at the level of the fourth rib and to the finger tips bilaterally. The blood pressure at that time was 200 mm. of mercury systolic and 130 mm. diastolic. The patient apparently made a good recovery and was discharged with instructions to take nitroglycerin.

His second admission was in April 1947, at which time he had severe precordial and substernal pain, generalized weakness and inability to speak, although he could understand what was said. The patient was right-handed. Examination revealed minimal right hemiparesis, hyperactive deep reflexes and a Babinski sign on the right. An electrocardiogram showed no changes from the tracing taken at the previous entry. There was no effect noted following carotid sinus stimulation and hyperventilation. The motor aphasia cleared spontaneously 12 hours after the patient entered the hospital (16 hours after the onset). The right hemiparesis disappeared a short time later.

The patient was observed for the third time in January 1948, when he had a 30-hour episode of motor aphasia which was associated, at the onset, with substernal pain. Examination disclosed only aphasia and Babinski's sign on the right.

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After discharge, he continued to have anginal attacks accompanied by the additional symptoms of dizziness and "lightheadedness." He was admitted briefly in October 1948, because of syncope with substernal pain, but otherwise he was not seriously incapacitated until his fifth and most recent hospitalization with the third attack of motor aphasia associated with substernal pain.

Three hours before the present admission there had been sudden onset of severe, constricting, substernal pain, dizziness, generalized headache and inability to speak.

Upon physical examination the patient was noted to be plethoric, slightly dyspneic and orthopneic. He was alert and responded to all commands, verbal and written. He did not make any sounds, although attempts were made to get him to speak.

The blood pressure was 170 mm. of mercury systolic and 100 mm. diastolic. The heart was enlarged 1 cm. to the left of the midclavicular line. The rhythm was regular and there were no murmurs. The lungs were clear. Neurological examination demonstrated only motor aphasia and lower right facial weakness. An electrocardiogram revealed no changes from the previous tracings. Spinal fluid examination disclosed no abnormalities. When the lumbar puncture was done preceding the stellate block, it was suggested to the patient that he would get his speech back, but the suggestion had no effect.

Three hours and 40 minutes after the onset of the substernal pain and motor aphasia, the left stellate ganglion was infiltrated with 10 cc. of 1 per cent procaine and a left Horner's syndrome was produced. Ten minutes later the patient was able to mumble a few words. In ten more minutes his speech was almost normal. The substernal pain was also greatly relieved. He said he had been trying all the time to talk, but speech "just would not come."

An electroencephalogram obtained the day following his admission showed only a borderline abnormality in the left parietal area. The patient was discharged without symptoms several days later.

DISCUSSION

In this patient there was apparently an intimate relationship between the neurovascular control of the brain and the heart. Not only had he had three episodes of motor aphasia, all accompanied by objective neurological findings that indicated impaired function of the left cerebral hemisphere, but in the year preceding this last admission he had also suffered from dizziness, "lightheadedness" and had had one episode of syncope in association with angina pectoris. The possibility of a general reduction in circulatory efficiency was considered as an etiological agent, but at no time had there been congestive failure, nor had there been a fall in blood pressure in any of these episodes.

Furthermore, the angina pectoris and motor aphasia were relieved within a few minutes of each other by a stellate block, suggesting a close relationship within the sympathetic chain between the nervous components of the respective physiological disturbances.

Procaine block of the stellate ganglion is believed to be of value in the treatment of acute cerebral embolism and thrombosis.[2, 7, 9, 12, 13] Under direct vision, this procedure has been shown[12] to result in the immediate dilatation of at least the ipsilateral superficial cerebral vessels. Electroencephalographic changes have also been demonstrated after paralyzing the stellate ganglion.[2]

Stellate block has been used to ameliorate angina pectoris although, in addition, the upper thoracic ganglia must usually be injected to obtain complete relief.[14] Of course, when the stellate ganglion is anesthetized, all the impulses passing to the cervical sympathetic ganglia above are also interrupted.

The exact relationship between the neurovascular control of the circulation of the brain and heart has not yet been discovered. Instances of syncope associated with angina have been reported in which other mechanisms such as carotid sinus sensitivity, hyperventilation and cardiac arrhythmias were eliminated.[8] Mental disturbances occasionally occur in association with acute cardiac conditions.[5, 6, 11] One of the authors has observed a patient with trigeminal neuralgia who had attacks of face pain following angina pectoris, and vice versa. The same patient also had migraine, hypertension, and spastic arterioles in the fundi. He died later of acute coronary thrombosis.

Coronary thrombosis is often suspected in patients with acute neurological disorders. Hemiplegia and aphasia[1, 3, 10] may be the presenting symptoms. Whether a fall in blood pressure or slowing of the circulation explains all the neurological phenomena that may follow myocardial infarction is open to question.

The case reported here illustrates a relationship between angina pectoris and circulatory disturbances in the brain and demonstrates that both may be relieved by blocking the sympathetic nerves supplying the affected structures.

SUMMARY

A patient with severe angina pectoris associated with recurrent motor aphasia was temporarily relieved of all symptoms within a few minutes after procaine block of the stellate ganglion.

The possible relationship of the neurovascular mechanism of the heart and brain is discussed.

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EDITORIALS

Industrial Fees Again

For the past year nothing so much as confusion has surrounded the subject of fees to be charged and paid for the care of persons ill because of industrial accidents. The order of events in negotiation of a new fee schedule has been: (1) the Industrial Accident Commission of the State of California determined that it had no legal right to promulgate or enforce a schedule of fees and that the existing schedule should be discontinued as of June 30, 1949; (2) the California Medical Association's proposed fee schedule remained unrecognized by either the Commission or the insurance carriers; (3) the carriers and the California Medical Association appointed negotiating committees to meet in an effort to work out a mutually acceptable schedule; (4) negotiations bogged down; (5) the Association urged its members to file claims with the Accident Commission for adjudication of fees where fee statements were arbitrarily reduced by insurance carriers; (6) a number of such claims were filed and many of them still await hearing; (7) the Association's Executive Committee resumed negotiations with the carriers.

The Executive Committee has already started its meetings with the insurance carriers and has additional sessions planned. The Committee realizes that the establishment of industrial medical and surgical fees is a complex matter that cannot be adequately settled overnight; it further realizes that there are economic considerations on both sides of the picture that must be taken into full account in any settlement to be reached. Further, it realizes that the positions of the Industrial Accident Commission, the employer and the injured workman are all to be considered in planning any course of action looking toward an acceptable solution of the fee schedule matter.

In the light of these considerations, and without in any way retracting the earlier recommendations of the Council, the Executive Committee recently sent to the secretaries of the county medical societies a brief resume of the proceedings with representatives of the insurance carriers. This communication included the statement that there was no compulsion on any member to file claims in cases in which the fee had been reduced; rather, it pointed out that each member should be considered a free agent in the conduct of his own business with insurance companies. This suggestion was made by way of explanation of the earlier recommendations of the Council, which were at all times *recommendations only*.

Inherent in the present negotiations between C.M.A. and the insurance companies is the realization on both sides that an amicable relationship between the insurance fraternity and the medical profession is absolutely essential to the smooth functioning of the industrial accident laws. Each party recognizes the interdependence of the two bodies and the wisdom of making that relationship operate efficiently. Each recognizes the justice of some of the claims of the other. And, we believe, each realizes that an amicable solution of this long-standing problem is probably closer today than it has been at any time since the industrial accident laws were placed on the statute books in 1913.

The C.M.A. asked for adoption of a "1949 fee schedule" and some of the insurance carriers replied they would pay on the basis of the "1946 fee schedule." The Industrial Accident Commission declined to recognize or approve either of these. Out of such stuff comes a stalemate, a condition which is harmful to all. The Executive Committee of the Association believes that a "1950 fee schedule" is the solution and that such a schedule, if approved by both insurance carriers and the Association, has every chance to be approved (not adopted) by the Industrial Accident Commission and thus gain the recognition which any such schedule must have in both insurance and medical quarters. It is toward that end that meetings are now going on. We wish the negotiators early and mutual success.

Letters to the Editor . . .

Cancer-Inhibiting Normal Serum Component

Norris and Majnarich[1] noted that the rate of proliferation of *in vitro* cultures of normal bone marrow cells is accelerated by the addition of normal blood serum and inhibited by the serum of cancer patients. In an attempt to isolate the active substances from such serums, the serum proteins were first precipitated by the addition of an equal volume of acetone. The resulting deproteinated serum was evaporated to a small volume under reduced pressure to remove the acetone and then diluted with distilled water to the original serum volume. Test showed that the inhibiting and stimulating factors were present practically quantitatively in the resulting protein-free product.

From this product the active components were removed in large measure by adsorption on activated charcoal ("Norit"). One growth factor was eluted from its Norit carrier with normal NaOH, and a second factor by subsequent elution with ammoniacal acetone. The same method of Norit adsorption and double elution yields growth-stimulating and growth-inhibiting factors from urine.

In a typical test, 0.1 cc. NH_3-acetone elute from normal urine was added to 2 cc. bone marrow culture containing 4,760 nucleated cells per cu. mm. After seven hours' incubation, the nucleated cell count had increased to 11,800 per cu. mm., an increase of 148 per cent. Control tests without the NH_3-acetone elute had increased to only 7,920 nucleated cells per cu. mm. or 66 per cent. There was thus more than a 100 per cent acceleration of normal cell proliferation due to the action of the NH_3-acetone elute.

A parallel test with NaOH-elute from the same urine showed a final nucleated cell count of only 6,520 per cu. mm., or 29 per cent less than the control count. This is equivalent to nearly 50 per cent retardation of normal cell multiplication. In tests with NaOH-elutes from the urine of certain cancer patients, final cell counts as low as 1,845 per cu. mm. were recorded. This was a reduction of 61 per cent below the initial cell count, suggesting that the NaOH-elute had a lytic as well as an inhibiting action on normal tissue cells.

The tests showed that both normal serum and the serum of cancer patients contain both accelerating and inhibiting substances. The accelerating factor is dominant in normal serum. The inhibiting factor predominates in the serum of cancer patients.

Directly opposite effects were obtained in tests of the same two factors on the proliferation rate of Brown-Pearce tumor cells. While the NaOH-elute inhibits normal cell proliferation, it accelerates proliferation of cancer cells. In the same way NH_3-elute, which accelerates normal cell proliferation, is an effective inhibiter of the proliferation of cancer cells.

Theoretical and clinical applications of these findings have not yet been reported.

REFERENCE

1. Norris, E. R., and Majnarich, J. J.: Amer. J. Physiol., 152:652; 153:483, 1948. Proc. Soc. Exp. Biol. and Med., 70:229 (Feb.), 1949.

W. H. Manwaring
Stanford University, Calif.

CALIFORNIA MEDICAL ASSOCIATION

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NOTICES AND REPORTS

Executive Committee Minutes

Tentative Draft: Minutes of the 216th Meeting of the Executive Committee, San Francisco, November 10, 1949.

The meeting was called to order by Chairman MacLean in Room 214, Sir Francis Drake Hotel, San Francisco, at 2 p.m., Thursday, November 10, 1949.

Roll Call:

Present were President Kneeshaw, President-elect Cass, Speaker Alesen, Council Chairman Shipman and Auditing Committee Chairman MacLean, members of the Executive Committee, and Secretary Garland and Editor Wilbur, ex-officio members. Present by invitation were Executive Secretary Hunton, Assistant Executive Secretary Wheeler, Legal Counsel Hassard and Mr. Ben Read, executive secretary of the Public Health League of California. A quorum present and acting.

1. *Pomona College Public Affairs Program:*

A request for financial participation in a program scheduled by Pomona College on the subject of successful operation of democratic principles was considered and it was voted to have the field secretary look into the program and report to the next Council meeting.

2. *Legal Department:*

Mr. Hassard reported on the operation of a privately-owned medical care prepayment organization in Los Angeles which is using a name which might be confused in the public mind with the name of the Association. It was regularly moved, seconded and voted to ask the field secretary to review this organization and report back to the Council.

3. *Committee on Indigent Care and Hospital Construction:*

Dr. Garland presented drafts of two reports prepared by the special committee (Garland, chairman; Kneeshaw and Hassard, members) on (1) the medical and hospital care of indigents through private facilities and (2) the use of state or federal funds for hospital construction. It was moved, seconded and voted to distribute these drafts to the members of the Council for their study prior to the next Council meeting.

4. *Federal Funds for Health Center Construction:*

The Secretary reported on possible ambiguities appearing in an agreement reached between the C.M.A. Chronic Disease Committee and representatives of the State Department of Public Health on the use of federal funds for construction of local health centers. It was brought out that the Association now has several committees studying various aspects of the practice and administration of public health services and it was regularly moved, seconded and voted that these existing committees be consolidated into one over-all committee on public health matters, such committee to be named by the Council Chairman prior to the next Council meeting and to have the authority, when constituted, to appoint subcommittees of its own membership to study specific matters. The Executive Secretary was instructed to notify appropriate officials of the State Department of Health that the Association will meet with local health officers to determine the scope of adequate and proper functions to be undertaken in local health centers.

The Secretary requested that the Executive Committee ask the Committee on Chronic Diseases to review its letter of October 18, 1949, dealing with the use of federal funds for heart disease and cancer work, particularly in the light of other Association recommendations on using federal funds.

5. *Department of Vocational Rehabilitation:*

The Secretary brought to the attention of the committee a statement by the medical consultant to the Department of Vocational Rehabilitation, Department of Education, to the effect that free diagnostic procedures were being performed on potential applicants for state aid prior to the social servicing of such individuals. The Executive Secretary was instructed to notify the department that the Executive Committee had reviewed this procedure and was of the belief that all potential applicants for vocational rehabilitation aid should be adequately social serviced *prior* to the undertaking of any diagnostic procedures, in order that eligibility for services be established at the outset.

6. *A.M.A. 1950 Annual Session:*

A request for the Association's name to appear as a sponsor for the A.M.A. post-convention air tour to Hawaii was approved.

7. *After-Hours Telephone Service in C.M.A. Office:*

The Executive Secretary reported that important messages are sometimes received after normal office hours and are undeliverable in the absence of telephone service to locate him or Mr. Wheeler. He requested authority to institute an after-hours telephone answering service at a cost of about $22.50 monthly. It was agreed that this be approved as an office administrative procedure.

8. *Industrial Medical Fees:*

A negotiating committee representing industrial accident insurance carriers came before the committee at the committee's request. The insurance committee was composed of Messrs. Gordon Snow, William Knox, B. F. Meekins, Richard Quigley and Lester I. Newman, M.D. Mr. Snow acted as spokesman for this committee and requested information as to whether or not any action had been taken by the C.M.A. to notify Association members that no compulsion existed as to the filing of claims with the Industrial Accident Commission for adjudication of fees in dispute. There followed a general discussion of the problems involved in reaching an amicable adjustment of differences between the insurance carriers and the physicians as to fees to be paid for industrial injury cases.

The following four-point proposal was agreed to by the insurance committee and, upon motion duly made and seconded, was unanimously adopted by the Executive Committee. This proposal follows:

1. The negotiating committee of the insurance carriers and the Executive Committee of the C.M.A. agree that each is dealing with an authoritative body in the other.

2. The California Medical Association agrees to notify its component county medical societies that members are not under compulsion in the filing or pressing of claims before the Industrial Accident Commission for the adjudication of fees in industrial cases.

3. The prospective "1950 Fee Schedule" to be developed by these two committees jointly shall be considered to be in effect after it has been approved by the Industrial Accident Commission.

4. There shall be established a continuing joint committee of the two interests, such committee to review and act upon grievances brought before it by either party and to review at least every two years the schedule of medical and surgical fees for industrial injury cases.

9. *Adjournment.*

There being no further business to come before the meeting, it was adjourned at 8:20 p.m.

H. Gordon MacLean, M.D., *Chairman*
L. Henry Garland, M.D., *Secretary*

San Mateo County Blood Bank

Shortly before the beginning of World War II, the need for an adequate and available supply of whole blood and plasma for civilian and military use was recognized by the citizens of San Mateo County.

First to anticipate this need were members of labor organizations in the county. Their suggestion for a permanent blood bank was approved and unanimously endorsed by the San Mateo County Medical Society.

As a result of this united and enthusiastic cooperation of the citizenry throughout the county, a non-profit community enterprise was officially incorporated on April 14, 1942.

This Blood Bank is based upon two principles of operation: A "credit" system and a "replacement" system.

Under the "credit system," blood donated by an individual is credited to him; for each pint of blood given, another credit is added to his record. This system is of particular advantage to groups.

Under the "replacement system," a patient with no previous Blood Bank credits calls upon his friends or relatives to repay the amount of blood used. The maximum time limit for replacement is one year.

The Blood Bank charge to the patient is $7.50 for each pint of blood or $10.00 for each unit of plasma. In addition a deposit of $22.50 is required until replacement is made and this deposit is forfeited if the blood used is not replaced. Recipients are urged to arrange for replacements rather than forfeit the $22.50 deposit.

It should be emphasized that the San Mateo County Blood Bank does not buy or sell blood. It operates a service.

No request for blood is ever refused because of the patient's inability to pay the modest service charge.

As of September 1, 1949, seven and a half years after this bank began operations, it has drawn and processed 24,709 pints of blood. This amount represents the donations of 12,105 individuals who have averaged approximately two pints per person.

During this period, 7,891 pints were donated to the military and naval hospitals in the Bay Area.

To date 18,951 residents who have not been donors have been blood typed without charge and their classifications retained permanently in the files of the Blood Bank for prompt reference in emergency.

From 500 to 1,000 units of plasma are maintained at all times and strategically distributed throughout the county for use in event of disaster.

The San Mateo County Blood Bank serves the hospitals of the County of San Mateo as well as the northern part of Santa Clara County, including the City of Palo Alto, an area of approximately 450 square miles, with a population of about 300,000 persons.

The bank maintains reciprocity with the six other community banks in the state and stands ready to assist them on demand.

At present the cost of operating the San Mateo County Blood Bank is almost wholly covered by the service fee charged to patients. As an agency of the Community Chest, it receives supplemental financial aid from that organization and would be eligible for additional funds therefrom if the need should arise.

Approximately 90 persons staff the Blood Bank each month. Of these, all except ten perform their services gratis. The salaried staff consists of physicians, qualified technicians and laboratory assistants. The volunteers serve as typists, hostesses, desk attendants, telephone and file clerks and bookkeepers.

In view of the growing population of the county and in anticipation of future needs, the Blood Bank has purchased a site for the eventual expansion of its physical facilities.

Although responsibility for the government and scientific conduct of the San Mateo County Blood Bank is delegated to its executive committee and to the San Mateo County Medical Society, the Blood Bank is actually owned by the citizens of the county.

The value of such public ownership is evidenced in the ever increasing number of repeated blood donations by local residents and in the unlimited amount of volunteer aid which have made the success of the San Mateo County Blood Bank possible.

In Memoriam

Breyer, John Henry. Died in Pasadena, August 10, 1949, aged 65, of coronary occlusion. Graduate of Rush Medical College, 1909. Licensed in California in 1909. Dr. Breyer was a retired member of the Los Angeles County Medical Association, and the California Medical Association.

⁂

Buge, Donald Barker. Died in Gardena, October 12, 1949, aged 44, as the result of an aspirated hemorrhage. Graduate of Northwestern University Medical School, Chicago, 1929. Licensed in California in 1935. Dr. Buge was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

⁂

Donoher, William David. Died in Los Angeles, October 11, 1949, aged 76, of generalized arteriosclerosis. Graduate of St. Louis College of Physicians and Surgeons, 1895. Licensed in California in 1933. Dr. Donoher was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

⁂

Faught, Arthur McGinnis. Died in Hollywood, September 26, 1949, aged 64, of coronary thrombosis. Graduate of Lincoln Medical College, Eclectic, 1905. Licensed in California in 1923. Dr. Faught was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

Fraser, Harold Eugene. Died in San Francisco, September 30, 1949, aged 50, of a heart ailment. Graduate of the University of California Medical School, Berkeley-San Francisco, 1924. Licensed in California in 1924. Dr. Fraser was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

⁂

Griffith, Powell West. Died in Los Angeles, October 9, 1949, aged 43, of a heart attack. Graduate of the University of Georgia School of Medicine, Augusta, 1931. Licensed in California in 1938. Dr. Griffith was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

⁂

McLaughlin, Roy Carlyle. Died in Hollywood, October 12, 1949, aged 59, of carcinoma. Graduate of the University of Manitoba Faculty of Medicine, Winnipeg, 1917. Licensed in California in 1930. Dr. McLaughlin was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

⁂

Parsons, James Edward. Died in Dixon, September 22, 1949, aged 59. Graduate of the University of Louisville School of Medicine, 1916. Licensed in California in 1917. Dr. Parsons was a member of the Yolo County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

⁂

Reasner, William Frederick. Died in Santa Monica, October 2, 1949, aged 72. Graduate of Jenner Medical College, Chicago, 1913. Licensed in California in 1927. Dr. Reasner was a retired member of the Los Angeles County Medical Association, and the California Medical Association.

⁂

Rose, Louis Max. Died in San Francisco, October 15, 1949, aged 67, as the result of injuries received in a fall. Graduate of the Chicago College of Medicine and Surgery, 1913. Licensed in California in 1914. Dr. Rose was a retired member of the Santa Clara County Medical Society, and the California Medical Association.

⁂

Rosson, Charles Tilden, Sr. Died in Hanford, October 17, 1949, aged 71, of a heart attack. Graduate of the College of Physicians and Surgeons of San Francisco, 1903. Licensed in California in 1903. Dr. Rosson was a member of the Kings County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

⁂

Saam, John Gustav. Died in Oakland, October 2, 1949, aged 68, of coronary occlusion, myocardial infarction. Graduate of Rush Medical College, 1908. Licensed in California in 1924. Dr. Saam was a member of the Alameda County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

⁂

Williams, Edith Sybil Hammond. Died in Kentfield, July 4, 1949, aged 72, of heart disease. Graduate of Cooper Medical College, San Francisco, 1901. Licensed in California in 1901. Dr. Williams was a retired member of the San Francisco County Medical Association, and the California Medical Association.

⁂

Zeimer, Irving Scott. Died in Stockton, September 30, 1949, aged 69, of cerebral arteriosclerosis. Graduate of Cooper Medical College, San Francisco, 1905. Licensed in California in 1906. Dr. Zeimer was a member of the San Joaquin County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

California Medical Association

Proposed New Constitution and By-Laws

(SECOND PUBLICATION)

The following is the final draft of a proposed revision of the Constitution and By-Laws of the California Medical Association. It was submitted to the 1949 Annual Meeting of the C.M.A. House of Delegates by Sam J. McClendon, M.D., chairman of a committee which was appointed to review a tentative redrafting of the present document. Action on the proposed revised version is scheduled to be taken by the House of Delegates at the Annual Meeting in 1950.

CONSTITUTION

ARTICLE I.—NAME, PURPOSES AND ORGANIZATION

Section 1.—Name

The name of this organization is California Medical Association (hereinafter referred to as the Association).

Section 2.—Purposes

The purposes of this Association are to promote the science and art of medicine, the protection of public health, and the betterment of the medical profession; to promote similar interests of its component societies; and to unite with similar organizations in other states and territories of the United States to form the Amcrican Medical Association.

Section 3.—Organization

This Association has two divisions: One, the Association as an organization; and Two, the Scientific Assembly. The Association as an organization includes component societies and their active members, the House of Delegates, Council, Commissions and Standing Committees. The Scientific Assembly includes all members of the Association and the scientific sections.

Section 4.—Definition of Component Societies

Component societies include all county medical societies (which may cover one or more counties) heretofore or hereafter chartered by this Association.

Section 5.—Component Society Charters

Charters to component societies may be granted and revoked as hereinafter prescribed, subject to the limitation that only one charter may be outstanding at any one time in any county.

ARTICLE II.—MEMBERSHIP

Section 1.—Classes of Members

The members of this Association shall consist of Active, Associate, Honorary, Retired, Life and Affiliate members.

Section 2.—Membership Qualifications, Rights, Privileges, Duties and Method of Election

The qualifications, rights, privileges, duties, obligations and methods of election of the several classes of membership are as stated in the By-Laws.

ARTICLE III.—GOVERNMENT OF THE ASSOCIATION

Part A.—House of Delegates

Section 1.—Composition

The House of Delegates shall consist of:

(a) Delegates elected by the members of component societies;

(b) Officers of the Association as hereinafter provided; and

(c) Ex officio, without the right to vote, the District Councilors.

Section 2.—Representation

As the By-Laws shall provide, each component society shall be entitled to proportionate representation in the House of Delegates but with a minimum of one delegate.

Section 3.—Alternates

Alternates shall be elected, as specified in the By-Laws, in the same manner as delegates are elected. One alternate shall be seated in place of each delegate absent or disqualified for failure to attend meetings or other cause.

Section 4.—Terms of Delegates and Alternates

Delegates and alternates shall serve for two or three years as each component society may determine. One-half or one-third, as the case may be, of the allowed number shall be elected each year.

Section 5.—Quorum

A majority of the authorized number of delegates shall constitute a quorum.

Section 6.—Functions of the House of Delegates

The House of Delegates shall be the legislative body of the Association and shall exercise such other functions as the By-Laws may prescribe.

Section 7.—Issuance and Revocation of Charters

(a) The House of Delegates shall issue charters to medical societies of a county or combination of counties deemed eligible and which have made proper application therefor.

(b) The House of Delegates may suspend or revoke any such charter, after due notice and proper hearing, for cause. "Cause" shall be considered to be any conduct or action, on the part of any component society, deemed in contravention of the Constitution and By-Laws of the Association or the American Medical Association or their "Principles of Medical Ethics." "Cause" shall further be deemed to be any conduct or action of a component society deemed inimical to the best interests of the Association.

(c) It may act on the withdrawal or secession of any component society from the Association and take such measures as are deemed advisable and proper for reinstatement of any component society which may have withdrawn or had its charter suspended or revoked.

(d) A two-thirds affirmative vote of the delegates present and voting shall be necessary for any action under the provisions of this section.

Section 8.—Sessions of the House of Delegates

In each year there shall be one or more sessions of the House of Delegates as fixed in the By-Laws. Special sessions may be called and held as provided in the By-Laws.

Part B.—Council

Section 9.—Composition

The Council shall consist of:

(a) One Councilor, elected from each district; and

(b) The President, President-Elect, Speaker and Vice-Speaker.

In addition, the Secretary-Treasurer and Editor, ex officio but without the right to vote.

Section 10.—Councilor Districts

There are twelve councilor districts as follows:

District Number One, comprising San Diego County.

District Number Two, comprising Imperial, Orange, Riverside, San Bernardino, Mono and Inyo counties.

District Number Three, comprising that area included in the 1937 city limits of the City of Los Angeles and known as Councilor District 1(g) of the Los Angeles County Medical Association. (If the By-Laws of the Los Angeles County Medical Association are hereafter amended to change the reference therein to the 1937 city limits of the City of Los Angeles to another date, such other date shall automatically be incorporated in this By-Law in lieu of the year 1937.)

District Number Four, comprising the County of Los Angeles except the area included in District Number Three above.

District Number Five, comprising Ventura, Santa Barbara and San Luis Obispo counties.

District Number Six, comprising Kern, Kings, Tulare, Fresno, Madera, Merced and Mariposa counties.

District Number Seven, comprising Monterey, San Benito, Santa Cruz, Santa Clara and San Mateo counties.

District Number Eight, comprising San Francisco County.

District Number Nine, comprising Alameda County.

District Number Ten, comprising Stanislaus, Contra Costa, San Joaquin, Calaveras, Tuolumne, Amador and Alpine counties.

District Number Eleven, comprising Marin, Solano, Napa, Sonoma, Lake, Mendocino, Humboldt and Del Norte counties.

District Number Twelve, comprising Sacramento, Eldorado, Placer, Nevada, Sierra, Yuba, Sutter, Yolo, Colusa, Glenn, Butte, Plumas, Tehama, Trinity, Shasta, Lassen, Modoc and Siskiyou counties.

Section 11.—Election of Councilors

Councilors shall be elected by vote of the delegates from each district in the manner and at the time specified in the By-Laws.

Section 12.—Councilors: Terms of Office

Councilors shall serve for terms of three (3) years; one-third to be elected in each year.

Section 13.—Council: Powers and Duties

Subject to the provisions of this Constitution, and all resolutions and enactments of the House of Delegates, the Council shall be vested with full and complete power and authority to manage, control, use, invest, reinvest, lease, make contracts in respect of, and concerning, convey, give, grant, transfer or otherwise dispose of all property and assets of whatever kind or nature owned by the Association, and shall also be vested with full and complete power and authority to do and perform all acts and to transact all business for and on behalf of the Association and to manage and conduct all the work and activities of the Association in carrying out the purposes thereof. The Council shall have such additional duties, powers and functions as are prescribed in the By-Laws.

Section 14.—Election of Councilors on Adoption of this Constitution

Upon the adoption of this Constitution, the delegates from each district shall proceed to elect Councilors as follows: At the annual meeting at which this Constitution is adopted, the Councilors of the First, Fourth, Seventh, and Tenth Districts shall be elected for terms of one year each; Councilors of the Second, Fifth, Eighth, and Eleventh Districts shall be elected for terms of two years each; and Councilors of the Third, Sixth, Ninth, and Twelfth Districts shall be elected for terms of three years each. Thereafter, as each term expires, the delegates from the districts shall elect a Councilor to serve for a term of three years.

Upon the adoption of this Constitution and the election of twelve district Councilors, as above provided, the terms of office of the Councilors elected prior to the adoption of this Constitution shall immediately cease and terminate.

ARTICLE IV.—FUNDS, PROPERTY, DUES, ASSESSMENTS AND EXPENDITURES

Section 1.—Annual Dues

At each regular session the House of Delegates shall, by a majority vote, fix the annual dues to be paid by members of the Association for the ensuing calendar year. Dues payable by active members shall be uniform and equal, except that the House of Delegates may reduce dues for certain groups (by general classification) as the By-Laws may expressly permit.

Dues payable by associate members shall be uniform and equal but may be set at not less than one half the regular dues for active members.

Section 2.—Military Service

During any period at which the United States is at war or requires services of doctors of medicine under an universal military training or draft program. annual dues may be reduced or waived by the House of Delegates with respect to those members serving in the Armed Forces of the United States during the whole or any part of any year.

Section 3.—Leaves of Absence

The Council, on recommendation of a component society, may grant leaves of absence to active members who are seriously ill and cannot practice or who leave practice temporarily for postgraduate study or other purposes acceptable to the component society and the Council and during such leave a uniform reduction of dues shall be established by the Council; provided no leave may exceed one year but shall be subject to renewal.

Section 4.—Special Assessments, etc.

Funds may also be raised by any of the following methods: (a) publications of the Association; (b) voluntary contributions; (c) bequests, legacies, devises, and gifts; (d) special assessments levied by the House of Delegates; and (e) in any other manner approved by the House of Delegates. In the event that the House of Delegates levies any special or other assessment than the annual assessment of dues, it may, in the resolution levying the assessment, fix and determine the time within which such assessment must be paid, the class or classes of members of the Association upon whom it is levied, and the penalty, if any. including forfeiture or suspension of membership in this Association or the component society, or both, to result from nonpayment thereof within the time prescribed.

Section 5.—Annual Budget and Expenditures

At each regular session of the House of Delegates, the Council shall submit to it an itemized budget stating the proposed expenditures of the Association for the ensuing year. The budget may be altered or revised by the House of Delegates, but must be adopted by the House before adjournment of the session. After its adoption, no expenditures in excess of the amount of the budget item covering the subject of such expenditures may be made in the year covered by the budget by the Association or any of its officers, agents or employees, unless the Council by a three-fourths vote of all voting members shall first approve such excess expenditure by resolution duly adopted. Recurring items in the budget (fixed expenditures covering more than one year) shall, when first adopted, be binding as to subsequent budgets to the extent of commitments or obligations entered into by the Association within authority granted by the House of Delegates or this Constitution or the By-Laws.

Section 6.—Benevolence Fund

At least $1.00 out of the annual dues paid by each active member of the Association shall be allocated to the Physicians' Benevolence Fund and shall only be used for the purposes as set forth in the By-Laws.

Section 7.—All Funds and Moneys to Be Paid to Secretary-Treasurer and Deposited With Depositary

All funds and moneys received for the Association by any officer or agent thereof shall be promptly paid to the Secretary-Treasurer and by him deposited with a depositary selected as such by the Council.

All depositaries selected by the Council shall be banks or trust companies duly licensed to transact business as such in the State of California.

Section 8.—Membership Interest in Association Property

No person other than an active member in good standing shall have any interest in the property of the Association and the interest of any active member therein shall cease when he ceases to be a member of the Association.

If any active member shall resign or otherwise cease to be an active member of the Association, all of his interest in and to all property of the Association shall cease and such cessation of membership shall operate as a release and assignment to the Association of all the right, title and interest of such member in and to all the property of the Association.

ARTICLE V.—REFERENDUM AND PETITION

Section 1.—Referendum and Petition

The right of referendum and petition shall be as set forth in the By-Laws.

ARTICLE VI.—OFFICERS

Section 1.—Officers

The officers of this Association shall be a President, a President-Elect, a Secretary-Treasurer, a Speaker of the House of Delegates, a Vice-Speaker of the House of Delegates and an Editor.

Section 2.—Powers and Duties of the President-Elect

The President-Elect shall act for the President in his absence or disability, and if the office of President becomes vacant the President-Elect shall then succeed to the Presidency to serve as President for such unexpired term and for the term of one year thereafter.

ARTICLE VII.—SCIENTIFIC ASSEMBLY

Section 1.—Objects

The Scientific Assembly of the California Medical Association is the convocation of its members for the presentation and discussion of subjects pertaining to the science and art of medicine.

Section 2.—Sections

The Scientific Assembly shall be divided into sections, each section representing that branch of medicine described in its title.

Section 3.—Creation of New Sections

New sections may be created or existing sections discontinued by the House of Delegates. The Scientific Assembly and its sections shall be conducted in accordance with the provisions of this Constitution and the By-Laws, and such other instructions by the House of Delegates or the Council as may not be in conflict therewith.

ARTICLE VIII.—MISCELLANEOUS

Section 1.—Incorporation

(a) To aid in carrying out the objects of the Association, the House of Delegates at any meeting of any regular or special session thereof may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to cause the formation and organization of a non-profit corporation under the laws of the State of California, without capital stock, with such incorporators, name, purposes, objects, principal place of business, term, number of directors and directors to serve for the first year and until their successors are elected and have accepted office, and with such provisions regarding the voting power and property rights and interests of the members of the corporation and such further provisions in the Articles of Incorporation thereof, and with By-Laws and composed of such members representing this Association as the Council shall prescribe, fix and determine. The House of Delegates may at its option in connection with the granting and giving of such authority, power and direction to the Council, prescribe, fix and determine any or all of such matters pertaining to the said corporation, its Articles of Incorporation and any provision thereof, By-Laws and membership, and its action thereon shall bind the Council; and the House of Delegates at any meeting of any regular or special session thereof may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to grant, assign, transfer, convey and deliver, or cause to be granted, assigned, transferred, conveyed and delivered to the said corporation upon the formation thereof without any consideration therefor, any property, real or personal, of the Association, which authorization, power and direction may be given prior or subsequent to the formation and organization of said corporation.

(b) To further aid in carrying out the objects of the Association, the House of Delegates at any meeting at any regular or special session thereof may, by a two-thirds vote of the membership thereof present and acting, authorize, empower and direct the Council to cause the formation and organization of one or more corporations under the laws of the State of California with such incorporators, name, purposes, county where the principal office for the transaction of business is to be located, first directors, the total number of shares, the aggregate par value, if any, of all shares, classes of shares, par value of any shares having par value, statement of the provisions, privileges and restrictions granted or imposed upon the respective classes of shares, or if the corporation be formed without capital stock the authorized number and qualifications of its voting and other rights of each class of members and the liability of each and all classes, to dues or assessments, and with such further provisions in the articles of incorporation thereof and with such by-laws as the Council shall prescribe, fix and determine; and the House of Delegates at any meeting of any regular or special session thereof may, by a vote of two-thirds of the members thereof present and acting, authorize, empower and direct the Council to grant, assign, transfer, convey or deliver or cause to be granted, assigned, transferred, conveyed or delivered to any of such corporations upon the formation thereof or to applicants for health and accident or other insurance in or from any of said corporations at or prior to the formation thereof without any consideration therefor, such funds and property, real or personal, of this Association as the House of Delegates shall from time to time authorize or ratify.

Section 2.—Seal

The Association shall have an Association seal consisting of a circle having on the circumference the words "California Medical Association, Eureka, 1856," with such further emblems, figures and words as the House of Delegates, on recommendation from the Council, shall prescribe.

The power to change the seal shall rest with the House of Delegates.

Section 3.—Amendments

Any member of the House of Delegates at any meeting of any session, other than a special session, thereof may present an amendment or amendments to any article or articles or any section or sections of any article or articles of this Constitution.

Such proposed amendment or amendments shall be in writing and shall be filed with the Secretary and shall thereafter be published at least twice in separate issues of the official journal of this Association prior to the next session of the House of Delegates.

At the said next session, other than a special session, of the House of Delegates, such proposed amendment or amendments shall be submitted to the House of Delegates, for consideration at any meeting of the House of Delegates during that session, and if two-thirds of the Delegates present and voting vote in favor thereof, the same shall be adopted.

Section 4.—Repeal of All Provisions of Existing Constitution

All articles and all sections and all parts of all articles of the existing Constitution are hereby repealed.

BY-LAWS

CHAPTER I.—COMPONENT SOCIETIES

Section 1.—Component Society Charters

The charter of each component society shall provide that all the provisions of the Constitution and By-Laws of this Association in force at the time of the issuance of such charter, together with all amendments to either thereof thereafter adopted, in so far as the same are applicable, shall be an integral part of the Constitution and By-Laws of the component society to which the charter is issued and that the terms and provisions thereof shall control and govern such component society, the officers and members thereof, and that the constitution and by-laws of the component society shall not be amended in any way to conflict or be inconsistent with the Constitution and By-Laws of this Association. Each charter shall be signed by the President and the Secretary-Treasurer of this Association.

Section 2.—Revocation of Component Society Charters

The charter of any component society may be revoked by the House of Delegates if, after the filing with the Secretary-Treasurer of this Association of a written petition or protest signed either by the Chairman of the Council pursuant to resolution adopted by the Council by the affirmative vote of two-thirds of all the members thereof, and after due notice of hearing and after hearing thereof, the House of Delegates by a two-thirds vote of its members decides that the provisions of the Constitution or By-Laws of this Association or of the charter of such society have been breached by such society or that such society has committed acts or conducted itself in conflict with the Constitution, By-Laws or purposes of this Association to such extent as to make such revocation desirable in the best interests of this Association.

Section 3.—Component Society Sections

(a) *Geographical or Specialty Sections.* A component society may authorize the formation and existence of branch geographical or specialty sections for scientific investigation and work only, and the members of such geographical sections or specialty sections must be members of such component society.

(b) *Members in Sections to Be Members of Respective Component Societies.* No geographical or specialty section shall be permitted to have any classes of members which classes in whole or in part include non-members of the component society of which any such geographical or specialty section is a branch or subdivision; provided that nothing in this section shall be construed as limiting the guest privileges of such non-members at meetings of such section.

Section 4.—Component Societies Exclusive Judges of Qualifications of Applicants for Membership

Each component society shall, subject to the minimum requirements for eligibility as provided herein, determine the qualifications for membership therein and shall be the sole judge of the qualifications of applicants for such membership.

A member must not practice or claim to practice, support, cooperate with or in any other way endorse any exclusive or sectarian system of medicine. He shall be honorable and ethical in his conduct and shall subscribe to the principles of medical ethics of the American Medical Association and to such as may from time to time be adopted by the California Medical Association, and shall recognize the authorized officers of his component society and of this Association as the proper authority to interpret any doubtful points in ethics.

Every applicant for membership in a component society shall fill out and sign in duplicate the application blanks provided by the society, which prescribe the necessary qualifications for membership. One copy of each such application shall be promptly forwarded to the office of this Association.

Section 5.—Component Society Rosters of Members and of Licensed Physicians in Counties

The secretary of each component society shall keep a roster of its members and of the non-affiliated registered physicians of the county, on which shall be shown the full name, address, school and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. In keeping such roster the component society's secretary shall note and at once notify the Secretary-Treasurer of this Association of any changes in the personnel of the profession, by death, by resignation, or by removal to or from the county, and in making his annual report he shall endeavor to account for every physician who has lived in the county during the year. The secretary of each component society shall make a monthly report to the Secretary-Treasurer of this Association upon such forms and including such subjects as are herein provided, and as the Council may authorize.

CHAPTER II.—MEMBERSHIP

Section 1.—What Constitutes Membership

The name of a doctor of medicine on the official roster of this Association, after it has been properly reported by the secretary of his component society, and after the dues or other assessments due this Association shall have been paid by the component society for each such member according to the class of membership held by each component society member, shall be prima facie evidence of membership, and of his right to register at the Annual Session.

Section 2.—Qualifications for Membership and Method of Election Thereto

(a) *Active Members.* Active members shall comprise all active members of all the component societies. No person shall be eligible for election to active membership in a component society unless he shall hold the degree of Doctor of Medicine issued to him by an institution of learning, accredited at the time of conferring such degree by the American Medical Association or the Association of American Medical Colleges. He must also hold an unrevoked license to practice medicine and surgery in the State of California; provided, however, that subject to the minimum qualifications prescribed by this Constitution and the By-Laws, each component society shall be the exclusive judge of the qualifications of the members thereof.

(b) *Associate Members.* Associate members may be elected by the Council, upon recommendation of the component society of the county in which the associate member maintains his principal office of business, from those doctors of medicine engaged in teaching or research work or holding positions in the Federal Service or otherwise, and from other persons engaged in medical teaching or research or other scientific work contributing to medicine and the public health.

(c) *Retired Members.* The Council, on recommendation of any component society, may grant retired membership to those active members who have ceased the practice of medicine for reasons satisfactory to such component society and the Council, and who shall have been active members of the Association for a total of ten years prior thereto. Retired membership shall endure as long as the retired member does not engage in the practice of medicine; but in the event that a member classified as retired resumes the active practice of medicine, such resumption of practice shall automatically terminate retired membership and reestablish active membership. Upon resumption of active practice by any retired member, the secretary of his component society shall transfer such member from the retired classification to the active classification, and notify the Secretary of this Association, who shall do likewise with respect to the membership rolls of this Association.

(d) *Honorary Members.* The House of Delegates on recommendation by the Council may elect as honorary members any persons distinguished for their services or attainments as doctors of medicine or in the field of public health, or for research or other scientific work contributing to medicine.

(e) *Life Members.* Life members of the California Medical Association may be elected by the Council on the recommendation of any component county society from those active members thereof who (1) have been active members of this Association continuously for a period of twenty (20) years or more and are more than fifty (50) but less than sixty (60) years of age and have tendered to this Association a life membership fee of one hundred fifty dollars ($150.00) or such other sum as the House of Delegates may from time to time determine; or (2) have been active members of this Association continuously for twenty-five (25) years or more and are more than sixty (60) but less than sixty-five (65) years of age and have tendered to this Association a life membership fee of one hundred dollars ($100.00) or such other sum as the House of Delegates may from time to time determine; or (3) have been active members of this Association continuously for a period of twenty-five (25) years or more, are more than sixty-five (65) but less than seventy (70) years of age and have tendered to this Association a life membership fee of fifty dollars ($50.00) or such other sum as the House of Delegates may from time to time determine; or (4) have been active members of this Association continuously for twenty-five (25) years or more and are more than seventy (70) years of age. Those active members falling within Classification 4 need not be recommended by any component county society but are eligible to life membership on direct application to the Council. The Council may not elect to life membership any active member whose membership has not been continuous or who has ever been censured, suspended or expelled from the American Medical Association, this Association, any state medical association which is a constituent unit of the American Medical Association, or any county medical society which is a component part of this Association or a unit of any other state medical association.

(f) *Affiliate Members.* The House of Delegates may, from time to time, establish special and limited classes of membership in this Association for internes, junior and senior residents, or house officers, practicing in hospitals in this state. In establishing such special membership for internes, junior and senior residents, or house officers, the House of Delegates may determine the qualifications, duration and privileges of such membership.

The House of Delegates may also from time to time provide for affiliation with the California Medical Association, on an affiliate basis, of undergraduate medical students attending medical schools in this state. Unless the House of Delegates determines to the contrary, such special or affiliate members shall pay uniform minimum dues as determined by the Council.

Section 3.—Rights and Privileges of Membership

(a) *Active Members.* Subject to the provisions of this Constitution and By-Laws, all active members shall have the right of suffrage and all other rights and privileges of the Association.

(b) *Associate Members.* Subject to this Constitution and By-Laws, associate members shall have all of the rights and privileges of active members, except the right to vote or hold office.

(c) *Retired Members.* Subject to this Constitution and By-Laws, retired members shall be entitled to receive publications of the Association at such rates as the Council from time to time may determine. Retired members shall not have the right to vote or to hold office. Retired members shall not be required to pay dues unless the House of Delegates determines otherwise, and then the rate of dues shall be fixed by the House of Delegates.

(d) *Honorary Members.* Subject to this Constitution and By-Laws, honorary members shall not be obliged to pay dues and shall not have the right to vote or to hold office.

(e) *Life Members.* Life members shall not be obliged to pay dues and shall not be liable for assessments of any kind or nature. If active membership in good standing is maintained in his component society, each life member shall have the right to vote, to hold office, and shall have all other rights and privileges of the Association. If active membership in his component society is not maintained, the rights and privileges of a life member shall be those of a retired member.

(f) *Affiliate Members.* Affiliate members shall not have the right to vote or hold office, and may be elected to such membership for specified terms and subject to continuance of student, interne or hospital resident status, but shall have all other privileges of membership.

(g) *Additional Classes of Membership.* Subject to this Constitution and By-Laws, the House of Delegates may from time to time establish special and limited classes of membership and fix the dues, qualifications, duration and privileges of such membership.

Section 4.—Termination of Membership

(a) *By Expulsion from Component Societies.* Expulsion from any component society, after due proceedings in accordance with these By-Laws, upon becoming final terminates all the rights and privileges in this Association of the member so expelled.

(b) *By Failure to Pay Dues.* If the annual assessment of dues, payable to this Association by any member of this Association, is not paid on or before April 1 of any year, such member shall automatically lose his membership in this Association as of April 1 of such year. The Council of this Association, in its discretion, upon payment of such unpaid dues, and any other assessments or dues accruing thereafter, may at any time reinstate such member.

(c) *By Revocation of Physician and Surgeon's Certificate.* Any member whose license to practice medicine and surgery in the State of California is revoked shall, upon receipt of written evidence of such revocation by the Secretary of this Association, thereupon cease to be a member of this association.

(d) *Acts and Conduct Subjecting Member to Censure, Suspension or Expulsion by Component Society.* Any member of a component society who has been adjudged guilty of a criminal offense involving moral turpitude, or who has been duly adjudged guilty by his society, in accordance with the procedural requirements of these By-Laws, of gross misconduct as a physician or a surgeon or of a violation of any of the provisions of the constitution or by-laws or principles of professional conduct of his society or of the principles of medical ethics promulgated from time to time by this Association or by the American Medical Association, shall be subject to censure, suspension or expulsion from his society by such component society.

Section 5.—Disciplinary Procedure

Disciplinary Procedure for Component Societies. The procedure to be followed by each component society with respect to the censure, suspension or expulsion of a member shall be:

(1) *Charges; Formal Requirements; a Formal Charge Must First Be Made.* Such charge must be in writing, signed by the accuser, and if made by a person other than a member of the society must be sworn to before an officer of the State of California authorized to administer oaths. Charges must state the acts or conduct complained of with reasonable particularity.

(2) *Charges; Filing; Secretary's Duties; Presentation to Board of Directors (or Grievance Committee).* Charges must be filed with the secretary of the accused member's component society. At the first regular or special meeting of the Board of Directors (or other governing body, whether called Council, Board of Trustees, Executive Committee, or any other name, all of which are herein included in the term "Board of Directors") of such component society held after charges are filed, the secretary must present said charges to the Board. The Board of Directors shall then or at any adjournment of said meeting, but not more than thirty days after the date of such regular or special meeting, consider the charges, and in its discretion determine whether or not further proceedings shall be conducted. If the Board determines that no further action shall be taken, the charges shall be dismissed.

If a component society has no board of directors and more than ten members, its members must, at a regular meeting of the society, elect a grievance committee of not less than five (5) active members in good standing; two members shall be designated by the society to serve for a period of one year, two members shall be designated to serve for a period of two years, and one member shall be designated to serve for a period of three years. At the expiration of the terms of office of the respective members of such committee, successors shall be elected in like manner to serve for a period of three years each. Such grievance committee shall exercise all the power and perform all the duties herein conferred upon boards of directors in the manner and within the times herein provided. If a society has less than eleven members, the entire society, exclusive of the accuser and accused, shall constitute the grievance committee. All references herein to board of directors shall be deemed to include such grievance committees, and component societies of ten members or less.

(3) *Service of Charge Upon Accused.* If the Board of Directors determines that further action, with respect to said charges. shall be taken. the Board must, within fifteen (15) days after such decision, cause a copy of the charges to be served upon the accused by personally delivering a copy thereof to him, or by depositing a copy thereof in the United States mail, registered and addressed to the accused either at his last known office or at his last known residence.

(4) *Time and Place for Hearing; Service of Notice Thereof.* The Board of Directors shall, at said meeting at which its decision to proceed is made, fix a time and place for a hearing of said charges. Written notice of the time and place set for the hearing shall be served upon the accused within fifteen (15) days by personal delivery or registered mail as aforesaid.

The time so set for a hearing shall be not less than fifteen (15) days after the accused has been served as aforesaid, with a copy of the charges and with the notice of the time and place set for the hearing; said hearing must be held within the county in which the accused holds his county society membership. The hearing before the Board of Directors must actually commence within six months from the date of the filing of written charges. Failure to comply with this requirement shall constitute an automatic dismissal of the charges.

(5) *Right of Accused to Answer; Time to Answer; Formal Requirements.* The accused may, not less than five (5) days before the time set for a hearing, answer said charges. The answer shall be in writing and the original and three copies shall be filed with the secretary of the society; provided, however, that the failure of the accused to answer shall not be deemed to be an admission of the truth of the charges or a waiver of the accused's right to a hearing with respect to said charges.

(6) *Rules Governing Hearing; Duties of Referee of Society; Advice as to Procedure Only.* The Board of Directors shall give ample opportunity both to the accuser and the accused to be heard in person, and to present all testimony, evidence, or proofs which the accuser or the accused may deem necessary, provided that the Board may reject all testimony, evidence, or proofs, which in the judgment of the Board are immaterial, irrelevant or unnecessarily repetitious.

Either the Council or the Executive Committee of the California Medical Association, whenever it shall come to the attention of either thereof that a disciplinary proceeding is pending before any component society, may of its own motion, and shall, upon the request of such component society or of the member or members thereof the subject of any such disciplinary proceeding, appoint a referee who may, but need not be, a member of the California Medical Association, and shall cause the Secretary of the California Medical Association to notify the secretary of such component society of such appointment. The referee so appointed shall preside at the hearing of said charges and shall make all decisions concerning the admission or rejection of testimony or other evidence and procedure. The referee shall not, however, have any voice nor participate in any manner in the determination by the Board of Directors of the disposition of the charges. During the hearing the referee shall perform all duties normally performed by the presiding officer of the Board of Directors.

(7) *Record of Proceedings; Shorthand Reporter; Duty of Secretary to Preserve Board Records; Right of Accused to Copy.* The secretary shall preserve the original of said charges with a certificate of personal delivery or of mailing of a copy or copies thereof, as the case may be, the original notice of the time and place set for the hearing with a certificate of personal delivery or of mailing of a copy or copies thereof, as the case may be, and the original of the answer filed by any member accused if an answer be filed. At the hearing, the Board of Directors shall, at the expense of the society, employ a competent shorthand reporter to record and transcribe into typewriting testimony adduced on behalf of the accuser and the accused and all rulings made. The original charges with certificate of service thereof, the original notice of time and place for hearing with certificate of service thereof, the answer or answers, if any be filed, all documentary evidence introduced at the hearing, the typewritten transcript of the testimony and the written decision of the Board of Directors shall constitute the record of the entire proceedings. The Secretary shall, upon receipt from accused of a sum sufficient to defray the cost thereof, cause a copy or copies of such record to be transcribed, certified and furnished to the accused.

(8) *Decision of Board; When Must Be Written; Rules Governing Vote of Board.* The Board of Directors, after having given the accuser and the accused member full opportunity to be heard, shall conclude the hearing and shall render its decision in writing not more than thirty (30) days thereafter. Hearing shall include any oral arguments and the filing and consideration of any written briefs. The Board of Directors by a two-thirds affirmative vote of all the eligible members of the Board present and voting may exonerate or may censure, suspend or expel the accused member as the facts in its opinion may justify.

The decision of the Board of Directors may be expressed in resolution adopted by said vote. The decision may not contain an opinion and need only be signed by the secretary or the acting secretary of the component society.

The failure of at least two-thirds of all the members of the Board of Directors present and voting to agree upon the disposition of the charges shall act automatically as a dismissal of the same. No member of the Board of Directors not present at the said hearings for the entire time thereof shall be entitled to vote with respect to the disposition of the charges.

(9) *Suspension; Maximum Period; Status of Suspended Member.* If the Board of Directors shall determine to suspend an accused member, the term of such suspension shall be within the discretion of the Board, provided that in no case shall a member be suspended for a period greater than one year. A suspended member shall have no rights or privileges in the society, provided that at the expiration of the period of suspension such suspended member shall not be reinstated to membership in good standing until he applies for reinstatement and pays all dues accrued during said period of suspension.

(10) *(a) Board's Decision; Secretary to Send Copies.* Within ten (10) days after the decision of

the Board of Directors, the secretary of the society shall transmit a copy of the decision to the Board, to the accused member or members and to the Secretary of this Association.

(b) Board's Decision Final; Subject to Appeal. The action of the Board of Directors of a component society shall be final, subject only to appeal to the Council of the California Medical Association in such cases as are provided in these By-Laws.

The decision of the Board of Directors shall not become effective until the expiration of ten days after time during which an appeal may be taken to the Council of this Association. Filing an appeal with the Secretary of this Association shall automatically stay the execution of the decision of the Board of Directors of the component society until written notice of the action of the Council of this Association with respect to appeal has been received by the secretary of the component society from which the appeal was taken.

(c) Technical Rules of Evidence Not to Govern Disciplinary Hearings. All hearings with respect to the disposition of charges against a member of a component society shall be held and conducted in such manner as to ascertain all the facts fairly to the accuser and accused, eliminating all formal or technical rules and requirements which ordinarily pertain to judicial proceedings.

(d) Members Agree That No Cause of Action Shall Accrue. Any person so charged, censured, suspended, or expelled shall have no claim or cause of action against this Association, a component society or any member, director, councilor or officer, thereof by reason of such charges, or the hearing or the consideration thereof or censure, suspension or expulsion therefor.

(e) Expelled Members; Right to Apply for Membership; When Accrues. Any person whose membership has been involuntarily terminated in a component society by reason of violation of these By-Laws may apply for membership after the expiration of one year from the date said membership was terminated, and such application shall be considered in the same manner as a new application for membership.

Section 6.—Procedure for Appeal to Council

A member of a component society censured, suspended or expelled by his county society may appeal from the action of such component society to the Council of this Association within the period of two months succeeding the date of such censure, suspension, or expulsion. Appeals shall be in writing and be filed within the said period of two months in the office of the Secretary of this Association. Said appeal shall be accompanied by a copy of the record of the entire proceedings before the component society duly certified by its secretary, provided the Chairman of the Council may, in his discretion, extend the time of the appellant to file said record. Upon the filing of an appeal the secretary shall present it to the first subsequent meeting of the Executive Committee or the Council. Appeals shall be heard by the Council only after reasonable notice of not less than ten (10) days in writing of the time and place of the hearing of the appeal has been given to the appellant member and the president and secretary of the component society as provided in Section 4 hereof.

Section 7.—Rules Governing Appeals

In hearing appeals, the Council shall review all questions of procedure, and may, in its discretion, review the evidence contained in the record of the original proceedings held before the Board of Directors of the component society. The Council may make findings of fact contrary to, or in addition to, those made by said Board of Directors. Such findings may be based on the evidence adduced before said Board of Directors, either with or without the taking of evidence by the Council. The Council shall use any lawful means which in its judgment will best and most fairly present all the facts involved. The Council may, for the purpose of making such findings or for other purpose in the interest of justice, take additional evidence of or concerning facts material to the questions involved, or may, for such purpose, appoint a committee of its members or any notary public to act as referees or referee for the taking of such additional evidence.

Such referee or referees shall render a report in writing to the Council, which report shall contain a clear statement of the facts found by the referee or referees from the testimony or evidence adduced.

The Council may affirm, reverse or modify the decision of the Board of Directors or make such other disposition of the proceedings as it may deem proper.

In every case of an appeal the individual councilors and the Council, through a committee thereof, prior to any hearing being held upon the appeal, shall exert all proper efforts at conciliation and compromise.

This Association may be represented by its attorney to advise the Council upon procedural questions only.

The decision of the Council shall be final and bind the appellant member and the component society.

Section 8.—Registration at Annual Sessions Necessary for Participation Therein

Each member in attendance at any Session shall register, after his right to membership has been verified by reference to the records of this Association. No member shall take part in any of the proceedings of any Session until he has complied with the provisions of this section of the By-Laws.

Section 9.—Component Society Secretaries to Furnish Date on Applications for Membership

The secretary of each component society, on forms or blanks supplied by this Association for that purpose, shall notify the Secretary-Treasurer of this Association in writing, as soon as possible, of each application for membership in such component society, with the name, address, and all other particulars regarding the applicant known to such secretary.

Section 10.—Component Society Membership

Lists to Be Sent to Secretary-Treasurer. It shall be the duty of the secretary of each component society to furnish the Secretary-Treasurer before the first day of March of each year a list of names and addresses of all members in good standing on the first day of January of each year, and to notify in writing the Secretary-Treasurer of this Association monthly of all changes in membership of the component society, with corresponding changes of address.

Section 11.—Membership Where No Component Society Exists

Any Doctor of Medicine residing in an area in which there is no component society may apply for membership in the component society most convenient to the area in which he practices medicine, and if otherwise qualified he may be elected to membership therein.

Section 12.—Membership Where Major Office and Residence Are in Different Component Society Areas

A Doctor of Medicine may apply for membership only to that component society whose charter covers the area in which his major office for professional practice is located; provided that a Doctor of Medicine who resides in one county and practices in another may apply for membership to the component society whose charter covers the area in which his residence is located, if both such component society and the component society of the area in which his major office is located approve.

Section 13.—Membership as Affected by Transfer of Location of Office

A member who changes his office from the county through whose component county society he holds membership in this Association, to another county in which there is a component society, is eligible to membership in the component society of his new location on the presentation of a transfer card, and satisfactory evidence that his dues have been paid in full in the component society in which he holds membership; provided, however, that no evidence which would disqualify him for membership exists.

He shall forfeit his membership in this Association one year after such change of location of practice unless after proper application he is elected to membership in the society of the county to which he has moved.

Any member who has heretofore changed his location of practice as aforesaid shall have one year after the date of adoption hereof to comply with the provisions of this section.

Section 14.—Transfer Cards

When a member in good standing in a component society moves to another county or other jurisdiction in this State he shall, on request, be given a transfer card, without cost. He must assume such financial obligations as shall be deemed proper by the component society to which he is transferred, and to which he makes application for membership by transfer.

CHAPTER III.—HOUSE OF DELEGATES

Section 1.—Secretaries of Component Societies to Furnish Lists of Delegates and Alternates: Election and Lists

Each component society shall elect a delegate and one alternate for such delegate in an aggregate number of delegates and alternates equal to the total number of delegates and alternates to which the component society is entitled. At least sixty days prior to the next scheduled session, the secretary of each component society shall forward to the Secretary-Treasurer of the Association, on forms provided by the Association, the names and addresses of each delegate and his alternate elected by such component society, and shall certify thereon the dates of election and expiration of terms of service of each delegate and his alternate.

Failure to conform to this provision shall constitute grounds for disqualification of the delegation in default for the scheduled session, at the discretion of the House of Delegates.

Section 2.—Representation

Each component society shall be entitled to one delegate for every one hundred (100) active members, or fraction thereof, as of the first day of the preceding November.

Section 3.—Limitations on Seating of Delegates

Only duly elected delegates or their elected alternates may be seated at any session of the House of Delegates unless the Secretary of the Association has been given due notice of substitution at least fifteen (15) days in advance of the session.

Section 4.—Disqualification of Delegates or Alternates for Absence From a Session

Any delegate absent without good cause from two or more consecutive meetings of the House of Delegates, and who has failed to give fifteen days' notice to the Secretary of the Association of his inability to be present, shall thereupon be disqualified as a delegate and, in addition, ineligible for re-election as a delegate or alternate for three years immediately succeeding the expiration of his term; except that the Committee on Credentials may excuse absence on presentation of good cause therefor.

Section 5.—Notification of Delegates

The Secretary of each component society promptly shall notify in writing each delegate and alternate immediately after his election to such office, and shall expressly direct each delegate's and alternate's attention to the provisions of Section 5 above.

Section 6.—Qualifications of Delegates and Alternates

(a) At least three (3) years' active membership in good standing in the component society immediately preceding election shall be required for election as delegate or alternate.

(b) Only duly elected delegates, or properly qualified alternates, may be seated with the right to vote.

(c) No District Councilor may be elected as a delegate or alternate by a component society.

Section 7.—Sessions and Meetings

(a) In each year there shall be two sessions of the House of Delegates; the time and place of such sessions to be determined by the Council as far as possible in advance and notice thereof published in the Journal of the Association. One of these sessions shall be held in the first six months of each calendar year and is designated the Regular Session; the other shall be held in the last six months of each calendar year and is designated the Interim Session.

(b) In addition to regular sessions, special meetings of the House of Delegates may be called at any regular or special meeting of the Council, by a two-thirds vote of all the members of the Council, or by written call stating the object of the meeting, filed with the Secretary in the office of the Association and signed by one-half or more of the members of the House of Delegates. Upon the filing of such call with the Secretary, the Council shall within thirty (30) days thereafter fix the time and place for the holding of such special meeting and cause written notice thereof stating the object of the meeting to be sent by United States mail, postage fully prepaid, to each member of the House of Delegates, addressed to him at his office or place of residence, as shown by the records of the Secretary's office, at least fifteen (15) days prior to the date of meeting.

(c) Officers of the Association shall be elected at the regular session.

(d) Resolutions and other new business may be introduced at either the Regular Session or the Interim Session but shall not be acted upon until the next Regular or Interim Session, provided, however, that emergency measures may be acted upon at the session in which they are introduced but shall require a two-thirds vote for passage.

Section 8.—Division of Scientific Work

The House of Delegates, either upon recommendation of the Council or on its own initiative, shall provide for division of the scientific work of the Association among appropriate sections and assemblies.

Section 9.—House of Delegates Committee

Prior to or at the commencement of each regular session the Speaker of the House shall appoint from the members thereof the following committees:

1. A Committee on Credentials,

2. A Reference Committee on Finance, to review the Reports of the Secretary-Treasurer and Executive Secretary and to study and make recommendations to the House of Delegates on the budget submitted by the Council and the amount of dues for the ensuing year.

3. A Reference Committee on the reports of Officers, Council. Standing and Special Committees, and

4. Two or more Reference Committees on resolutions, amendments to the Constitution and By-Laws, and new and miscellaneous business (the Speaker may allocate amongst these committees all business properly referable to them).

Section 10.—Membership of Credentials and Reference Committee

Each of the aforesaid committees shall consist of three members, the chairman of each to be designated by the Speaker.

The Speaker, the House concurring, shall refer said reports, resolutions, and business to the respective Reference Committees, but may allocate among them any of said reports, resolutions or portions thereof, and other business, to avoid duplication and to expedite the business of the House of Delegates.

Each Reference Committee shall prepare a written report dealing with and making recommendations on all matters submitted to it. In those instances in which resolutions or other matters remain before a Reference Committee between meetings of the House of Delegates, copies of such resolutions or other matters and the recommendations of the committee thereon shall be mailed or delivered by the Secretary to each elected Delegate and Alternate at least thirty days (or if less than thirty days intervenes between meetings, as early as possible) prior to the meeting of the House of Delegates at which such resolutions or other matters and recommendations concerning them are to be considered. The report of each committee may be acted upon as a whole or section by section, as the House may determine.

Section 11.—Special Committees of House of Delegates

The Speaker, the House of Delegates concurring, shall have the right to appoint special committees for special work. All committees of the House of Delegates shall present their reports to the House of Delegates in writing.

Section 12.—Duties of Credentials Committee

The Secretary of the Association shall supply the Committee on Credentials with the necessary information concerning the membership of the House of Delegates.

The Secretary shall give this committee a list of component societies, showing the total membership as of November 1 of the preceding year. This committee shall ask each delegate and alternate to present his written credentials, but shall accept the official written list submitted by the secretary of any component society; provided that such written list be sent to the Secretary of the Association at least fifteen days before the beginning of the annual session.

The Committee shall make a written report to the House of Delegates of the delegates and alternates entitled to membership therein.

Section 13.—Delegates to the American Medical Association

The House of Delegates shall elect delegates and alternates to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that organization.

Section 14.—Special Committees Appointed by House of Delegates

The House of Delegates shall have authority to appoint committees for special purposes from among members of the Association who may or may not be members of the House of Delegates. Such committees shall report in writing to the House of Delegates; and the members, the House concurring, may participate in the debate on their reports.

CHAPTER IV.—COUNCIL

Section 1.—Auditing Committee of Council

The Chairman of the Council, subject to its approval, shall appoint an auditing committee of three members, designating one of the members as its chairman.

The Auditing Committee shall inspect all bills and claims against the Association, and no bill or claim shall be paid except upon voucher or draft having the approval of at least two of the three members of the Auditing Committee; provided, however, that any bill or claim may be paid without the approval of any member of the Auditing Committee by a majority vote or written approval of a majority of all the members of the Executive Committee.

Section 2.—Executive Committee of Council

The Executive Committee shall consist of the President, President-Elect, Chairman of the Council, Chairman of the Auditing Committee, and one other member of the Council (elected by the Council at its organization meeting each year). The Secretary-Treasurer and Editor shall be members ex officio, but without the right to vote. The organization, duties and powers of the Executive Committee shall be as provided in the By-Laws.

Section 3.—Council: Organization

At the first meeting of the Council held after the adjournment of the last meeting of the House of Delegates at the regular session of the Association, the Council shall organize by the election of one of the Councilors as Chairman of the Council, who shall serve as such up to the first Council meeting held after the adjournment of the last meeting of the House of Delegates of the next succeeding regular annual session of the Association; and a Vice-Chairman who shall hold office for the same term, and who, in the absence of the Chairman, shall perform the duties of the Chairman. The Secretary-Treasurer of the Association shall serve as the secretary of the Council.

Section 4.—Duties of District Councilors

Each District Councilor shall be organizer, peacemaker and censor for his district.

(a) *Visitation of Component Societies; and Report Thereon.* He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, of inquiring into the condition of the profession, and of maintaining touch with the activities of the component societies of his district. He shall in writing make an annual report of this work and of the condition of the profession of each county in his district to the Council, which shall take such action thereon as it may deem best.

(b) *Expenses of Councilors and Officers.* Councilors and officers shall be allowed railroad fare or mileage not exceeding 5 cents a mile, plus an allowance for maintenance expense of ten dollars a day, while absent from their places of residence; (a) in attending association, district or county society meetings; (b) meetings of committees of the Association; (c) authorized councilor or officer visits to county societies; (d) and otherwise when on official business, authorized or approved by the Council.

Section 5.—Mail Ballot

The Chairman of the Council, at any time, may direct the Secretary to submit any urgent matter or question to the members of the Council by mail ballot, the question or proposition being prepared through conference of the Secretary with the Chairman of the Council and the Chairman of the Executive Committee; and the vote of two-thirds of the members upon such question by mail or telegraph shall be binding upon the Council.

Section 6.—Registry

The Secretary-Treasurer, in writing, shall request each Councilor to register his address where he desires all notices to be sent to him by mail or telegram.

Section 7.—Order of Business

At meetings of the Council, business shall be transacted as the Council may determine from time to time by resolution.

The Council shall provide and fix the order of business of the House of Delegates at each session, provided that the House of Delegates may change the order of business by a majority vote.

Section 8.—Preparation of Budget; Annual Assessment

The Auditing Committee, prior to December 1 of any year, shall submit to the Executive Committee, for consideration at its December meeting, a budget under which the Association shall work in the fiscal year following the next annual session.

The Executive Committee, after consideration of the Auditing Committee's proposed budget, shall submit the same to the Council, prior to the spring meeting of the Council, with a report of its own containing suggested changes, additions, or comments.

The Council in turn shall consider the two proposed budgets so submitted, and shall then make a final draft of a proposed budget for the Association, to be submitted to the House of Delegates at the next annual session.

The Council shall recommend to the House of Delegates the amount of the annual dues or assessments of each member of the Association.

Section 9.—Committee on Arrangements for Regular and Interim Sessions

(a) *Appointment and Duties.* The Chairman of the Council, subject to the approval of the Council, shall, at least six months before each regular session, appoint a Committee on Arrangements for the regular and interim sessions of the ensuing year, one member thereof being designated as the general chairman. This committee shall consist of five members.

The Secretary-Treasurer of the Association shall be ex officio a member of this committee.

This committee shall have charge of all local arrangements not otherwise provided for.

The terms of office of members of this committee shall expire when the succeeding committee on arrangements is appointed.

As the local Committee on Arrangements this committee shall provide suitable meeting places and shall have general charge of all local arrangements. The committee shall have power to appoint local advisory members and subcommittees to aid in its work.

(b) *Commercial Exhibit.* The Council shall decide what portion of the income from commercial exhibits or other convention services shall go to the local Committee on Arrangements. The location and rules for the commercial exhibits and other accessory annual session activities shall be subject to the approval of the Council.

(c) *Local Convention Expenses.* The Council shall decide what portion of the local expenses shall be borne by the Association.

(d) *Report on Committee on Arrangements.* The Committee on Arrangements shall make and file with the Secretary-Treasurer of the Association an itemized, detailed report of all of its receipts and disbursements, and shall remit any moneys due the Association remaining in its possession, to the Secretary-Treasurer.

Section 10.—Offices

The Council shall provide and secure such offices for the Association as may be required to conduct its activities and business properly.

Section 11.—Executive or Field Secretaries or Representatives

The Council may employ one or more Executive or Field Secretaries or Representatives, who need not be physicians nor members of the Association. The duties of such a representative or representatives, if appointed, shall be determined by the Council by resolution.

Section 12.—Legal Counsel

The Council at its annual organization meeting shall appoint one or more legal advisors, giving each such title as may be deemed proper. It shall fix the amount of retainer and other fees. By resolution it shall indicate what duties shall be assigned to each advisor. The Council shall appoint such attorneys-at-law licensed in California at its annual organization meeting.

The Council shall have the right to request the attendance of Counsel of the Association at any meetings at which it might desire his presence and advice, and at such meetings he shall call the attention of the Council to matters in which the legal aspects may be of importance, and shall give such other opinions in special matters as may be requested of him by the Council.

The General Counsel shall present in writing as promptly as the same may be properly prepared, such legal opinions as may be requested by the House of Delegates, the Council or the Executive Committee.

CHAPTER V.—COMMITTEES

Section 1.—Standing Committees

The standing committees of this Association shall be as follows:

(a) Scientific Work
(b) Public Policy and Legislation
(c) Medical Defense
(d) Medical Education and Medical Institutions
(e) Hospitals, Dispensaries, and Clinics
(f) Medical Economics
(g) Associated Societies and Technical Groups
(h) History and Obituaries
(i) Industrial Practice
(j) Postgraduate Activities
(k) Public Relations
(l) Physicians' Benevolence Committee
(m) The Reference Committees of the House of Delegates

until final adjournment of each regular session.

Section 2.—Standing Committees; How Elected; Term of Office

Unless otherwise provided in these By-Laws, each of the standing committees (except House of Delegates Reference Committees) shall consist of one member of the Council and two other members. Members of standing committees (other than House of Delegates Reference Committees) shall serve for a term of three (3) years. One member of each of these committees shall be nominated annually by the Council and if approved by the House of Delegates shall be deemed elected.

Section 3.—Report Procedure for All Committees

Regular standing and special committees of the Association may make investigations and surveys on authorization of the Council or House of Delegates, but all recommendations and reports of all committees (unless expressly otherwise provided in the Constitution or By-Laws) must be submitted only to the Council or House of Delegates. Other than as herein stated no committee is authorized to act for or represent this Association.

Section 4.—Advisory Groups to Standing Committees

To aid it in its work, each committee, if it so desires, shall have the power to appoint an Advisory Group to its committee, consisting of from two to ten members. Such advisory members, if present at a regular committee meeting, shall not have the right to vote.

Section 5.—Officers of Standing Committees

The chairman of each of these committees, except the Committee on Public Relations, shall be nominated and elected annually by the Council, by and with the approval of the House of Delegates. The chairman of the Committee on Public Relations shall be elected by said committee, subject to the approval and confirmation of the Council, and in the event of a failure to elect within sixty days after adjournment of the annual session the Council shall elect said chairman. Each of these committees shall, each year, except as otherwise provided in these By-Laws, at its first meeting or official consultation, during or following the annual session elect its own secretary.

Section 6.—Secretary-Treasurer's Notice to Standing Committees

The Secretary-Treasurer of the Association, within one month after the annual session, shall write the Committee Chairman of the preceding year, to call a meeting for organization and consideration of any business. The Secretary shall also send a copy of this letter to each of the other members of the committee.

Section 7.—Annual Reports of Standing Committees

At least sixty days prior to the annual session, each of these committees shall submit a written report to the Council on its work during the preceding year, the same to be printed in the Pre-Convention Bulletin as otherwise provided.

Section 8.—Committee on Scientific Work

The Committee on Scientific Work shall consist of the Secretary-Treasurer, the secretaries of the sections on general surgery and general medicine and three other members to be elected by the Council, each of these three members to serve three years, one member being elected each year. The Secretary-Treasurer shall be chairman.

This committee shall determine the character and scope of the scientific proceedings of the Association for each session, and shall invite the guest speakers, subject to the instructions of the Council.

At least thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers and discussions shall be presented.

This committee shall have one joint session with the section secretaries, at a time and place to be designated by the chairman of the committee, at least forty-five days prior to the annual session, to coordinate more efficiently the various activities of the Association at its annual session. The chairman of the local committee on arrangements shall be invited to attend this meeting.

Section 9.—Committee on Public Policy and Legislation

The Committee on Public Policy and Legislation shall consist of three elected members, and ex officio, the President and President-Elect.

The chairman of the committee, and in his absence, the President, shall act as chairman at the joint meetings of this central state group and of auxiliary county groups.

(a) *Functions of the Committee.* The Committee on Public Policy and Legislation and its auxiliary county groups shall represent the Association in securing and enforcing legislation in the interest of public health and of scientific medicine, subject, however, to the approval of the Council.

(b) *County Auxiliary Committees on Public Policy and Legislation.* Each component society shall appoint or elect three of its members as members of its auxiliary Committee on Public Policy and Legislation, designating one member as chairman; and the component society secretary shall send promptly the names and addresses to the Secretary of this Association.

(c) *Work of Auxiliary County Committees.* The Committee on Public Policy and Legislation of this Association, with the sanction of the Council, shall formulate the duties of these county auxiliary committees and supply each member with a copy of its suggestions and instructions. The auxiliary committeemen shall be accountable to their component societies and to the Council of this Association for prompt and continued cooperation with the Committee on Public Policy and Legislation of this Association.

Section 10.—Committee on Medical Defense

The Committee on Medical Defense, subject to the approval of the Council, shall prepare plans and establish rules for the protection of the legal rights of members of this Association against whom suits for alleged negligence have been threatened or brought.

It may assist in the defense of any member sued for alleged negligence if the member was in good standing and had complied with the rules of the Council when the service on account of which suit was threatened or brought was rendered—provided that the committee determines that the position of the member merits such action.

Section 11.—Committee on Medical Education and Medical Institutions

The Committee on Medical Education and Medical Institutions shall serve in this State for the Council on Medical Education of the American Medical Association.

It shall keep in touch with the problems pertaining to medical education and to medical and other institutions of training for medicine and the healing art.

Section 12.—Committee on Hospitals, Dispensaries and Clinics

The Committee on Hospitals, Dispensaries and Clinics shall serve in this State for the Council on Hospitals of the American Medical Association.

It shall keep in touch with the problems arising in the fields of work of all types of hospitals, dispensaries and clinics giving special attention to those activities that are, or tend to become, a menace to the best interests of scientific medicine and of the profession and its members.

Section 13.—Committee on Medical Economics

The Committee on Medical Economics shall investigate matters affecting the economic status of doctors of medicine.

Section 14.—Committee on Associated Societies and Technical Groups

The Committee on Associated Societies and Technical Groups, subject to the instructions of the Council, shall endeavor to create proper liaisons between this Association and other state and national medical organizations, as well as with the organizations of related professions, such as dentistry, pharmacy and nursing. It shall also endeavor to bring about a proper understanding with non-medical organizations or groups of technicians and others whose work has a bearing on or is related to the practice of medicine.

Section 15.—Committee on History and Obituaries

The Committee on History and Obituaries shall compile and prepare for the archives and for the publications of the society suitable articles on the history of the Association and statements concerning deceased members. The Editor and the Secretary shall be members of this committee, ex officio.

Section 16.—Committee on Industrial Practice

The Committee on Industrial Practice shall keep in touch with matters and problems peculiarly connected with industrial practice.

Section 17.—Committee on Postgraduate Activities

The Committee on Postgraduate Activities, of which the Secretary-Treasurer shall be an ex officio member, shall use its best efforts to promote the postgraduate and clinical courses and instruction among the component county units of the Association.

The supervision of such postgraduate and clinical courses and instruction shall be carried on through the central offices of the Association, the Council being empowered to defray travel expenses of guest speakers and other costs incident to such work to such amount as in the judgment of the Council may be deemed proper. In the development of such postgraduate and clinical courses and instruction, it is stipulated that the component societies, through their constituted representatives, shall cooperate with the Standing Committee on Postgraduate Activities and shall also arrange to bear a proper proportion of the expense thereof of such amount as may be mutually agreed upon.

Section 18.—Committee on Public Relations

The Committee on Public Relations shall consist of the chairmen of the following committees: Public Policy and Legislation, Medical Economics, Associated Societies and Technical Groups, the President, President-Elect, and two additional members appointed by the Council.

The committee shall be responsible to the Council and the House of Delegates for all of its activities.

The Council or the Executive Committee may instruct the Committee on Public Relations, and outline to it certain policies and duties which shall be executed through the Director of Public Relations. In the event of any disagreement between the committee and the Council or the Executive Committee as to any activity or policy, the decision of the Council, after full discussion and hearing, shall be final.

The committee shall make recommendations to the Council for approval as to the time, the place, the number of meetings and the budget of the Department of Public Relations, provided that the Secretary shall call the first meeting of the committee within thirty (30) days following the annual meeting of the Association.

The Director of Public Relations shall be appointed by the Council (after consultation with the Committee on Public Relations) annually at the organization meeting of the Council. He shall serve at the pleasure of the Council and the Committee. He shall act under the supervision and instruction of the chairman of the committee in such matters as shall be approved and sanctioned by the committee, and be responsible to the committee.

The Council shall arrange with the general counsel to give the committee all legal aid.

The committee shall annually at its first meeting elect its own chairman, subject to the approval and confirmation of the Council. The Secretary of the Association shall be ex officio secretary. A majority of the committee shall constitute a quorum.

Section 19.—Physicians' Benevolence Committee

The Physicians' Benevolence Committee shall consist of three (3) members whose appointments and terms of office shall be as provided in Section 2 of this Chapter.

The committee shall be responsible to the Council and the House of Delegates for all of its activities.

The committee shall administer those funds, of this Association, hereinafter designated as comprising the Physicians' Benevolence Fund.

The committee's administration of said fund shall be subject to the provisions of this section.

(a) The funds which may from time to time be allocated to it, from the general funds of the Association, by the Council, are the funds for this committee.

(b) All bequests, voluntary contributions, and donations, from any source whatever, that may be received by this Association for the express and implied purpose of aiding needy members, and

(c) All other funds from whatever source derived, except Accounts Receivable, payments for indebtedness to this Association, Dues and Assessments received by this Association, which the payer, donor, or other person transferring the funds, expresses the intent that such funds shall be for aid to needy members.

Funds contained in the Physicians' Benevolence Fund may from time to time be disbursed by the Physicians' Benevolence Committee.

Section 20.—Publication of Committee Reports in Pre-Convention Bulletin

Reports of the standing and special committees, as approved, deleted or modified by the Council, shall be published in a pre-convention bulletin or in the official journal of the month preceding the date of the annual session of the Association. Such reports must be in the hands of the Secretary-Treasurer at least sixty days in advance of the annual session.

If a committee fails to send in its report in proper time, the name of the committee and the names of its members shall be printed as above indicated, with a statement that the committee failed to send in its report, and the Council, subject to the approval of the House of Delegates, shall be empowered under such conditions to make such changes in the personnel of the committee as in its judgment may be deemed best.

Section 21.—Additional Committees

The House of Delegates and the Council are authorized and empowered to appoint special committees, with special instructions as to work to be undertaken, whenever it is deemed impractical or improper for the contemplated duties to be performed by a standing committee.

CHAPTER VI.—POWERS AND DUTIES OF OFFICERS

Section 1.—Duties of the President

The President shall preside at all meetings of the Association.

He shall appoint all committees not otherwise provided for; he shall deliver an address at the regular session at such time as may be arranged, and shall perform such other duties as custom and parliamentary usage may require, or as the House of Delegates or the Council may direct.

He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit, by appointment, the various sections of the State and assist the Councilors in building up the component societies, and in making their work more practical and useful. The Council shall decide what portion of the expenses incurred on his official visits shall be paid by the Association.

He shall be ex officio a member of all committees of the Association.

Section 2.—Vacancy in Offices of President and President-Elect; How Filled

In case of vacancy in the offices of both President and President-Elect, the chairman of the Council shall act as the Acting President until a President is elected at the next annual session of the House of Delegates.

Section 3.—Duties of the Secretary-Treasurer, Executive Secretary and Field Representatives

The duties of the Executive Secretary and Field Representatives may be such as are delegated to them by the Council, and may be any and all duties as are specified under the various provisions of this section.

(a) *Minutes.* The Secretary-Treasurer (who may also be referred to as Secretary or Treasurer) shall attend the General Meetings of the Association, the meetings of the House of Delegates, of the Council and of the Executive Committee, and shall keep minutes of their respective proceedings in separate record books.

(b) *Custodian of Records.* He shall be custodian of all record books and papers belonging to the Association. He shall have the custody of the seal of the Association.

(c) *Contracts.* He shall countersign all contracts, agreements, conveyances, transfers or other instruments to which the Association is a party, the execution of which has been authorized by the House of Delegates or Council.

(d) *Checks.* The Secretary-Treasurer shall sign and issue checks or drafts only upon vouchers approved and signed by at least two of the members of the Auditing Committee or as otherwise provided.

(e) *Advertisements in Association Publications.* The Secretary-Treasurer, subject to instructions by the Council, shall carefully examine, approve, modify or reject all material for advertising in any of the publications of the Association, and shall, in all cases of doubt, refer such proposed advertisements to the Executive Committee or the Council for decision. He shall, with the approval of the Council or the Executive Committee, execute, for the Association, written contracts relating to advertising in the form approved by the Council, subject to instructions by the Council.

(f) *Registrar at Annual Sessions.* He shall provide for the registration of the members and delegates at the Annual Session.

(g) *Index Register of California Medical Licentiates.* He shall, with the cooperation of the secretaries of the component societies, keep a card-index register of all the licensed practitioners of the State by counties, noting the status of each in relation to his component society; and shall transmit a copy of this list to the American Medical Association, transmitting to its secretary each month a report containing the names of new members and the names of those dropped from the membership roster during the preceding month.

(h) *Register of Component Societies, Their Members and Officers.* He shall keep a register of all component societies, their respective officers, and of all members of the Association, with their addresses, and shall compile an annual directory of the same. He shall print in the January or February issue of the official journal the number of active members of each component society as of November 1st of the preceding year.

(i) *Notices.* He shall give all notices required by the Constitution and By-Laws of this Association, or by order of the Council, or of the Executive Committee, or by law.

(j) *Correspondence and Notifications to Committees.* He shall conduct the official correspondence, promptly notifying members of meetings, officers of their election, and committees of their appointment and duties, as outlined in the motions creating such committees. Such notifications shall be made in writing.

(k) *Assistants.* He shall employ and dispense with such assistants as may be ordered by the Council. The Council by resolution may outline the scope and duties of special employees acting under the Secretary-Treasurer.

(l) *Annual and Other Report Forms.* He shall supply all component societies with the necessary forms for making their annual and other reports to this Association.

(m) *Salary.* The amount of his salary shall be fixed by the Council.

(n) *Bond.* He shall give bond in such sum as may be fixed by the Council. The Association shall pay the premium on the said bond.

(o) *Duties as Treasurer.* He shall as Treasurer demand and receive all funds due the Association, together with bequests and donations, and shall promptly deposit the same in one of the depositaries thereof; and shall keep a proper and accurate record thereof, as well as of all funds disbursed by the Association.

(p) *Audits and Reports.* He shall subject his accounts to such examination or audit as the House of Delegates or Council may order.

He shall annually render an account of his work, and of the state of the funds in his hands, and make a report on the same and of his work as Secretary-Treasurer to the House of Delegates. He shall in writing also make such other reports as the House of Delegates or Council may request.

(q) *Disbursement of Association Moneys.* He shall pay out the money of the Association only upon a check or draft as otherwise provided herein.

(r) *Other Duties.* He shall perform such other duties as the Council or Executive Committee may direct.

Section 4.—Duties and Powers of the Chairman of the Council

The Chairman of the Council shall preside at all meetings of the Council. He shall sign all contracts and agreements, conveyances, transfers or other instruments (other than advertising contracts) to which the Association is a party, the execution of which has been authorized by the House of Delegates or the Council. He shall sign all checks or drafts for the disbursement of funds of the Association. He shall, on behalf of the Council, deliver its annual report to the House of Delegates. He shall perform such other duties as may be imposed upon him by the Constitution or these By-Laws.

Section 5.—Duties of Vice-Chairman of the Council

The Vice-Chairman of the Council, in the absence or inability of the Chairman to act, shall be vested with all the powers and shall perform all the duties of the Chairman.

Section 6.—Duties and Powers of the Speaker

The Speaker of the House of Delegates shall preside at its meetings and shall perform such other duties as parliamentary usage may require. He shall appoint all committees authorized by the House of Delegates, unless otherwise provided.

Section 7.—Duties of Vice-Speaker

The Vice-Speaker shall act as Speaker in the absence of or at the request of the Speaker.

Section 8.—Duties of the Editor

The Editor and Associate Editor or Editors shall compile, edit and have charge of the official journal of the Association and such other publications as the Council or the House of Delegates may instruct him to undertake.

CHAPTER VII.—SESSIONS AND MEETINGS

Section 1.—Addresses at Regular Session

At the General Meetings, at such times as may have been arranged, shall be delivered the annual address of the President and, with the sanction of the Council, such other addresses and reports as may be deemed desirable.

Section 2.—Time Length of Papers

No address or paper, except that of the President, and such other addresses and reports as may be deemed desirable by the Council, shall occupy more than twenty minutes in delivery.

Section 3.—Time Length of Discussions

No member, except by unanimous consent, shall speak more than once in the discussion of any paper nor longer than five minutes at any one time.

This by-law shall be printed on all programs of general and section meetings.

Section 4.—Scientific Papers Property of Association

All papers read before this Association shall be its property.

Each paper, when it has been read, shall be deposited with the secretary of the section, by him to be promptly turned over to the Secretary of the Association.

Section 5.—Scientific Papers Not to Be Published Elsewhere

Authors of papers read before this Association shall not cause them to be published elsewhere except with the consent of the Committee on Publications.

Section 6.—All Meetings of Same Session Shall Be in Same Locality

The general meetings of the Association, the meetings of the House of Delegates, and the meetings of the Scientific Assembly and its sections at any session shall be held in the State of California at the same locality and in buildings as convenient of access, one to the other, as may be possible.

CHAPTER VIII.—ELECTION OF OFFICERS: TERMS

Section 1.—President-Elect—When and How Elected: Term of Office

The House of Delegates at the regular annual session thereof shall elect the President-Elect to serve until the adjournment of the final meeting of the House of Delegates at its next regular annual session. At the conclusion of the final meeting of the House of Delegates at its next regular annual session, such President-Elect shall assume the office of President, and serve as such for the term of one year thereafter, or until his successor assumes office.

Section 2.—Speaker and Vice-Speaker of House—When Elected: Term of Office

The House of Delegates shall at the regular annual session thereof elect a Speaker of the House of Delegates and a Vice-Speaker of the House of Delegates, each to serve for the term of one year, or until their successors are elected and assume office. The Speaker and Vice-Speaker shall be members of the House of Delegates at the time of their election.

Section 3.—Council Appointments to Fill Vacancies in Office

The Council by appointment shall fill any vacancy in office not otherwise provided for in this Constitution or the By-Laws, which occurs during the interval between the annual sessions of the House of Delegates. Such appointee shall serve until the next annual session or until his successor has been elected and has assumed office.

Section 4.—Officers Elected by House of Delegates

Those officers who under the Constitution are elected by the House of Delegates shall be elected at the second meeting of the House at the regular session thereof.

Section 5.—Election of District Councilors

At least twenty-four hours prior to the second meeting at each regular session of the House of Delegates the delegates from those districts in which Councilor vacancies are about to occur shall separately meet, and in each district the delegates shall elect a chairman and a secretary. At such caucus the delegates in each district shall by nomination, secret ballot and majority vote of the delegates present elect a district Councilor from such district to serve for the ensuing term. The chairman of the district delegation shall then report at the second meeting of the House of Delegates the results of the election, and when such report is made the member elected shall thereupon assume office as a district Councilor. The time and place of the caucus of each district delegation shall, in the absence of unanimous written consent by the delegates from the district fixing time and place, be fixed by the Speaker and announced at the first meeting of the House of Delegates at each regular session. In the event that at any district caucus no person receives a majority vote for district Councilor after repeated ballots, the chairman of the caucus shall report such fact at the second meeting of the House of Delegates and shall also report the names of all nominees submitted to the caucus, whereupon the House of Delegates shall proceed to elect from such nominees the district Councilor from such district.

Section 6.—Employment of Secretary-Treasurer, Assistant Secretaries, Editor and Associate Editors

The Council shall employ a Secretary-Treasurer and an Editor, and, in its discretion, one or more Assistant Secretaries or Associate Editors. The terms of their employment shall be such as are satisfactory to the Council, provided, however, that no contract of employment shall, by its terms, exceed a period of three (3) years from the date of the organization meeting at which such contract is authorized.

Section 7.—Qualifications of Secretary-Treasurer and Editor

No person shall be eligible to the office of Secretary-Treasurer or Editor or Associate Editor who does not hold the degree of Doctor of Medicine, but membership in this Association shall not be a necessary qualification for the offices of Secretary-Treasurer, Editor or Associate Editor.

Section 8.—Election by Ballot; Number of Votes Necessary

All elections of officers shall be by ballot; provided, that by a two-thirds vote of the members present and acting election by ballot may be waived.

A majority of the votes cast shall be necessary to elect any officer, except delegates and alternates to the American Medical Association.

In case no nominee receives a majority of the votes on the first ballot, the nominee receiving the lowest number of votes shall be dropped and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of all the votes cast, when he shall be declared elected.

Section 9.—Election of Delegates and Alternates to A.M.A.

In case no nominee for delegate or alternate to the House of Delegates of the American Medical Association receives a majority of the votes cast on the first ballot, the nominee receiving the highest number of votes cast shall be declared elected. In case of a tie vote, the tie shall be determined by lot. A separate election shall be held to fill each vacancy, and an alternate shall be specifically elected for each delegate.

Section 10.—When Terms of Office of Speaker, Vice-Speaker and Councilors Begin

The terms of office of the Speaker and Vice-Speaker of the House of Delegates (which terms are herein generally stated to be one year) and the terms of office of the Councilors (which terms are herein generally stated to be three years) shall commence immediately upon the adjournment of the last meeting of the House of Delegates of the regular session of the Association at which such officers are elected, and shall continue up to the adjournment of the last meeting of the House of Delegates at the annual session of the Association of the year in which the term of office ends.

Section 12.—Officers to Hold Office Until Successors Are Elected and Assume Office

Every officer shall hold office until his successor has been elected and has assumed office either in person or by announcement.

CHAPTER IX.—SCIENTIFIC SECTIONS

Section 1.

(a) *Division of Scientific Work.* The scientific work of the Association shall be divided into fifteen scientific sections, as follows: General Medicine; General Surgery; Pediatrics; Eye, Ear, Nose and Throat; Urology; Anesthesiology; Obstetrics and Gynecology; Radiology; Industrial Medicine and Surgery; Pathology and Bacteriology; Dermatology and Syphilology; Neuropsychiatry; General Practice; Public Health; and Allergy.

(b) *Additional Scientific Sections; How Authorized.* Additional scientific sections or regrouping of existing scientific sections can through proper resolution be authorized by the House of Delegates.

(c) *Rules of Procedure of Scientific Sections.* Each scientific section shall adopt rules of procedure for its own better government and work. Its officers shall be responsible for the proper keeping of records of scientific and business meetings.

(d) *Officers of Sections.* The members of each section shall at the regular annual session of the Association elect a chairman and a secretary to serve for the term of one year.

(e) *Program.* Each of the sections shall present a scientific program at the annual session of the Association, and its officers shall be responsible for the proper preparation of the same, and for the proper cooperation with other scientific sections during the annual meeting.

CHAPTER X.—FUNDS, PROPERTY AND ASSESSMENTS

Section 1.—Reduction of Dues

The House of Delegates may reduce annual dues of active members, as follows:

(a) Those active members who have been in the practice of medicine for less than one year (on the first day of the calendar year for which such dues are payable), may be reduced to one-fourth regular dues;

(b) Those active members who have been in the practice of medicine for less than two years (on the first day of the calendar year for which such dues are payable), may be reduced to one-half regular dues;

(c) Those active members who have been in the practice of medicine for less than three years (on the first day of the calendar year for which such dues are payable), may be reduced to three-fourths regular dues.

Dues payable by associate members shall be uniform and equal but may be set at not less than one-half the regular dues for active members.

Section 2.—Annual Dues and Assessments

(a) *When Payable.* The annual assessment or dues shall be payable on or before January 1 of the year for which they are levied.

(b) *County Secretaries to Collect Dues.* The secretary of each component society shall cause to be collected and shall forward to the office of the Association the dues and assessments for its members.

(c) *Record of Fact of Payment of Dues.* The record of payment of dues and assessments on file in the office of the Association shall be final as to the fact of payment by a member and as to his right to participate in the business and proceedings of the Association and of the House of Delegates.

(d) *Dues of New Members; Amount Payable.* All doctors of medicine becoming active members of this Association under the provisions of Section 1 of Chapter II of these By-Laws shall, as provided in Section 1 of Chapter II, pay to this Association the annual dues payable by active members for the period for which membership is obtained, except that the Council may, in its discretion, with respect to all new members who acquire membership after July 1 in each year, require payment of only one-half of the annual dues for said year. Such payment shall entitle such new member to all the rights of active membership in this Association until the end of the current calendar year.

Section 3.—Bequests, Legacies, Donations and Gifts

The Association may receive through the Council or for the benefit of the Association through any corporation which may be formed pursuant to the

Constitution, such bequests, legacies, donations and gifts as the Council shall deem it proper and suitable to accept.

Section 4.—Funds and Moneys; Deposit and Withdrawal

All funds and moneys of the Association by whomsoever received shall be promptly forwarded to the Secretary-Treasurer of the Association and deposited by him in a depositary of the Association.

No demands or claims against the Association shall be paid and no funds or moneys of the Association withdrawn from any depositary thereof except upon written voucher approved by the signature of at least two members of the Auditing Committee or by a majority vote or written approval of a majority of all the members of the Executive Committee on check or draft signed by any two of the following: the Chairman of the Council; the Vice-Chairman of the Council (only in the absence of the Chairman); Chairman of the Auditing Committee; the Secretary-Treasurer.

Section 5.—Revolving Fund

A revolving fund in such amount as may from time to time be fixed by the Council shall be deposited with the Secretary-Treasurer from which fund immediate cash demands may be paid.

Section 6.—Surplus Funds From Journal and Publications

On authorization therefor by the House of Delegates or the Council, any surplus funds arising from the operation of the official journal or other publications of the Association may be applied and used for any purposes deemed suitable or may be delivered and paid over to any corporation which may be formed pursuant to Article VIII, Section 1, of the Constitution.

CHAPTER XI.—REFERENDUM AND PETITION

Section 1.—Reference of Resolutions to Vote of Members

The House of Delegates may at any time, by a majority vote of those present, refer any resolution or motion pending before it to all of the active members of the Association for their vote for or against such resolution or motion. The Council may, by a two-thirds vote of all of its members and at any time within thirty (30) days after action was taken, refer any resolution or motion adopted by the House of Delegates to all of the active members of the Association for their vote for or against such resolution or motion. In addition, the Council may at any time, by a two-thirds vote of all of its members, submit any resolution or motion pending before it to all of the active members of the Association for their vote for or against such resolution or motion.

Section 2.—Form of Referendum: Arguments

The body referring any resolution or motion to the active members of the Association may, in the motion of reference, determine the form of the question to be submitted. In the event the motion of reference does not determine the form of the question to be submitted, then the form thereof shall be fixed and determined by the Council. Written arguments for and against the resolution or motion, not exceeding 1000 words each, may be submitted by any member of the Association to the presiding officer of the referring body within fifteen (15) days of the vote of reference. Such presiding officer may choose one argument on each side and same shall then be printed and mailed with the ballots.

Section 3.—Manner of Voting; Time of Voting; Canvass

All references to the membership under this article shall be by mail ballot. The time within which each member shall cast his vote may be fixed in the motion of reference, and if not so fixed shall be fifteen days from the date of mailing ballots. Each vote must be in writing and the same must be placed in a sealed envelope bearing on the corner thereof the name of the voter. The envelope shall be mailed or delivered to the Secretary's office. The canvass thereof shall be made by a committee on referendums to be appointed, in the case of reference by the House of Delegates by the Speaker of the House, and in the case of reference by the Council by the Chairman of the Council. The Secretary shall deliver to such committee all ballots timely received, and the committee shall canvass the vote and report the results thereof immediately to the Secretary.

Section 4.—Effect of Referendum

To be considered adopted, any resolution or motion submitted to the membership by referendum shall require the same proportionate affirmative vote of those voting that such resolution or motion would have required to be adopted by the body (House of Delegates or Council) from which such resolution or motion was referred. Any resolution or motion submitted to a referendum and adopted shall have the same force and effect as though adopted in the body from which it was referred, and shall be considered as having been so adopted by such body. A referendum shall not be effective or binding unless a majority of the active members vote thereon.

Section 5.—Petitions

Any 100 active members or any component society may petition the House of Delegates or Council on any matter and such petition must thereupon be heard and considered at the next ensuing regular meeting of such body.

CHAPTER XII.—MISCELLANEOUS

Section 1.—Ethics

The principles of medical ethics as promulgated from time to time by the American Medical Association and by the California Medical Association are and shall be the principles of medical ethics of this Association and the component societies thereof, and shall regulate and govern all members thereof.

Interpretation of ethics about which any controversy may arise or exist shall be submitted to the Council of this Association, and its interpretation and ruling thereon shall be final.

Section 2.—Rules of Order

In the absence of any provision in the Constitution or these By-Laws, all meetings of the Association, of the House of Delegates, of the Council, and of committees shall be governed by the parliamentary rules and usages contained in the current edition of Roberts' "Rules of Order."

CHAPTER XIII.—AMENDMENTS

Section 1.—Amendments—Vote and Procedure

These By-Laws may be amended by the House of Delegates at any meeting of any session thereof by the affirmative vote of at least two-thirds of the qualified members thereof present and acting; provided, that any proposed amendment has been submitted in writing to the House of Delegates at least twenty-four hours previous to being voted upon.

CHAPTER XIV.—REPEAL OF ALL EXISTING BY-LAWS

Section 1.—Repeal of Existing By-Laws

All chapters and all sections and parts of all chapters of the existing By-Laws of this Association are hereby repealed.

* * *

NEWS and NOTES

NATIONAL • STATE • COUNTY

IMPERIAL

Dr. Royal S. Cutler, formerly resident physician at the Imperial County Hospital, last month was appointed county physician to succeed to the post vacated by the resignation of Dr. Richard Maddux.

LOS ANGELES

More than 1,100 Los Angeles County physicians referred a total of 8,114 patients to the Physicians **Chest Photofluorographic Service** for free minifilms during the first six months of the service's operation, according to a report by the Los Angeles County Tuberculosis and Health Association, which is sponsoring the service as a demonstration program. Originally scheduled to end on October 18, the service has been continued to December 23, and until that time any member of the Medical Association may refer patients for the free minifilms. The patient must be at least 12 years of age, and referrals must be made on prescription forms furnished by the Tuberculosis Association.

* * *

The 19th Annual Mid-Winter Postgraduate Clinical Convention in **Ophthalmology and Otolaryngology** will be held in Los Angeles, January 15 to 27 inclusive. The meeting is sponsored by the Research Study Club of Los Angeles. Information regarding registration and fees may be obtained from Pierre Viole, M.D., 1930 Wilshire Boulevard, Los Angeles.

* * *

Women physicians of Los Angeles were hosts last month for the second convention of the **Pan American Medical Women's Alliance** which was held at the Hollywood Roosevelt Hotel. Physicians from South America, Mexico, Cuba, Canada and the United States attended the six-day convention. The program included scientific papers and exhibits and visits to hospitals and clinics. The organization was formed in 1947 to promote the interests of women physicians.

* * *

Appointment of **Dr. Rex Schmidt** as health officer for the Venice-Westchester area was announced last month by the Los Angeles Health Department.

PLACER-NEVADA-SIERRA

Organization of the **Woman's Auxiliary** to the Placer-Nevada-Sierra County Medical Society was accomplished last month at a meeting in Auburn. The organization meeting was conducted by Mrs. Raymond T. Wayland, president of the Woman's Auxiliary to the California Medical Association. The new county society auxiliary elected the following officers: President, Mrs. C. E. Lewis, Auburn; vice-president, Mrs. Robert Eveleth, Roseville; secretary, Mrs. B. W. Hummelt, Nevada City; treasurer, Mrs. O. F. Lang, Grass Valley.

SACRAMENTO

Dr. Albert F. Zipf, who since 1944 has served as health officer for both the City and County of Sacramento, has resigned that position, effective January 1. A successor has not yet been named.

SAN FRANCISCO

Dr. Phillips Thygeson, associate professor of ophthalmology at the University of California Medical School, has been named to deliver the third annual Estelle Doheny Eye Foundation lecture in Los Angeles, January 17. His subject will be "The Etiology and Treatment of Phlyctenular Keratitis." The lecture will be a part of the program of the 19th Annual Mid-Winter Postgraduate Clinical Convention in Ophthalmology and Otolaryngology.

* * *

Dr. Robert Wartenberg, associate clinical professor of neurology at the University of California Medical School, has been named honorary president of the inaugural congress of the Spanish Neurological Association being held in Barcelona this month. He will preside over the founding meeting of the Association.

* * *

Dr. Edward B. Shaw, chief of the communicable disease department of the San Francisco Hospital for children, was installed as president of the American Academy of Pediatrics during the annual meeting of that organization in San Francisco last month.

* * *

Dr. William P. Shepard, vice-president of the Metropolitan Life Insurance Company in charge of the company's division of health education on the Pacific Coast, was elected president-elect of the American Public Health Association at its recent annual meeting in New York.

* * *

Appointment of **Dr. Anthony J. J. Rourke,** physician-superintendent of Stanford Hospital in San Francisco, as a member of the Federal Hospital Council was announced last month by the Federal Security Administration. The Council will direct the disposition of $150,000,000 a year up to 1955 for construction of new hospitals. Dr. Rourke's appointment is for a four-year term which will end September 15, 1953.

SUTTER

Dr. George F. Poole, formerly of Catalina Island, has been appointed medical director of the Sutter County Hospital to fill a vacancy caused by the resignation of Dr. Joseph Lee.

GENERAL

A number of **grants to California educational institutions,** in aid of medical research and instruction with particular regard to cancer, were announced recently by the Federal Security Administration. In addition, the FSA awarded funds to two medical schools for construction of cancer research facilities.

Grants totaling $163,603 for new **research projects** and continuation of others already under way in California institutions were awarded as follows:

POSTGRADUATE EDUCATION NOTICES

University of California, San Francisco

Course: Applied Therapeutics.
Date: January 30 through February 1.
Course: Electrocardiography.
Date: January 30 through February 1.
Course: Special Problems in Pediatrics.
Date: February 6 through 10.
Course: Forensic Medicine.
Date: February 6 through 8.
Contact: Stacy R. Mettier, M.D., Medical Extension, University of California Medical Center, San Francisco 22, California. Fee and printed program supplied on request.

College of Medical Evangelists, Graduate School of Medicine

Course: Differential Diagnosis and Treatment of Internal Diseases.
Date: January 2 to March 20, Monday evenings.
Fee: $50.00.
Course: Dermatology.
Date: January 3 to March 21. Tuesday evenings.
Fee: $40.00.
Course: Treatment of Functional Illness in General Practice.
Date: January 4 to February 22. Wednesday evenings.
Fee: $40.00.
Course: General Urology.
Date: January 4 to March 1.
Fee: $35.00.
Course: Neurology.
Date: January 5 to February 23.
Fee: $30.00.
Course: Proctology.
Date: January 5 to March 9. Thursday mornings.
Fee: $50.00.
Course: Cardiology.
Date: January 10 to March 14. Tuesday evenings.
Fee: $50.00.
Course: Ophthalmology.
Date: January 31 to March 21. Tuesday evenings.
Fee: $30.00.
Contact: H. M. Walton, M.D., Dean, Graduate School of Medicine, College of Medical Evangelists, 312 North Boyle Avenue, Los Angeles 33, California.

California Institute of Technology, Pasadena, $13,716 for continuation of studies on the mouse-tumor hemorrhagic agent in cultures of B. coli, under the supervision of Dr. J. B. Koepfli.

Stanford University, Stanford, $4,104 for research on nitrogen-mustard carcinogenesis. Drs. E. L. Tatum and A. C. Griffin, supervisors.

University of California, San Francisco, $2,235 for research on induction of teratoid tumors of the testes in mammals. Dr. H. D. Moon, supervisor.

University of California, Berkeley, $20,000 for studies on the relation of the growth hormone to neoplasms. Dr. H. M. Evans, supervisor.

University of California, Berkeley, $101,408 for continuation of studies on physiology of cancer patients. Dr. F. S. Smyth, supervisor.

University of California, Berkeley, $17,604 for continuation of research on cholesterol metabolism in normal and neoplastic tissue. Dr. I. L. Chaikoff, supervisor.

Awards for construction of **cancer research facilities** were:

Stanford University, $100,000 for cancer research laboratories in the School of Medicine.

University of Southern California, Los Angeles, $200,000 for cancer research laboratories adjacent to the Los Angeles County General Hospital.

For continuation of a cancer training program, the College of Medical Evangelists, Los Angeles, was awarded a grant of $25,000.

The Security Administration also awarded a grant of $13,921 to be used by Dr. Howard R. Bierman, associate professor of oncology at the University of California, in conducting a further test to measure the **effectiveness of cancer teaching** in medical schools. A previous test devised by Dr. Bierman was applied to 8,994 students in 32 medical schools. Results disclosed a wide variation in knowledge of cancer as between senior medical students in one school and those in another. A second test is to be conducted soon and the results of the first test are to be compared with those of the second in an effort to find out what improvements may have been effected.

For dental research, the University of Southern California was awarded $9,843 to support a study by Francis M. Pottenger, Jr., of the growth and development of the face and the temporomandibular articulation under the stimulation of the adrenal cortex.

* * *

Appointment of **Dr. Alonzo F. Brand** as regional medical director of Region 10 of the U.S. Public Health Service, with headquarters in San Francisco, was announced recently. Dr. Brand succeeds **Dr. Walter T. Harrison** who retired last July. In his new post, Dr. Brand will direct Public Health Service activities in Washington, Oregon, California, Nevada, Arizona, Alaska and Hawaii.

* * *

The International and Fourth **American Congress on Obstetrics and Gynecology** will be held May 14-19, 1950, at the Hotel Statler, New York. Information regarding registration and hotel accommodations may be obtained from Fred L. Adair, M.D., 161 East Erie Street, Chicago 11, Illinois.

BOOK REVIEWS

THE EPITOME OF ANDREAS VESALIUS. Translated by L. R. Lind, Ph.D., The Macmillan Company, 1949. $7.50.

Four centuries ago, in 1543, there issued from the press at Basle the *De humani corporis fabrica* of Andreas Vesalius of Brussels and simultaneously the *Epitome* of that work. Sir William Osler regarded the *Fabrica* as the greatest medical book ever written; and therefore it is most appropriate that this, his centennial year, should see the appearance of the first English translation of the *Epitome*.

These two publications of Vesalius have rightly come to be regarded as the first positive achievement of modern science and mark the transition from the purely speculative and rationalistic approach to knowledge of the medieval period to the objective and observational method of today. With them, not only was the basic science of anatomy established but the printed book achieved with abrupt suddenness its perfection as a medium for the spread of exact scientific information by the development of the illustration in intimate relation to the written word. Furthermore, the blending of humanist, artist and modern man of science established a tradition whose influences extend to our times and created a prototype of medical man whose characteristics distinguish the great physician.

That every English-speaking physician may appreciate this great heritage, Professor L. R. Lind provides us with a magnificent translation of the shorter *Epitome* of the *Fabrica.* The translation has been placed in its setting by a brief but excellent introduction and is accompanied by copious and useful explanatory notes provided by C. W. Asling. The work is completed by a facsimile of the original text and the illustrations which have been reduced to approximately half-size. Finally, the author has incorporated as an appendix the marginal terms employed by Vesalius which form the basis of modern anatomical terminology.

The *Epitome* of Vesalius, despite its title, is in point of fact not an epitome of the *Fabrica* at all, but a separate work written in didactic fashion and intended to serve as an introductory manual to the science of anatomy or, as described by its author, to serve as a foot-path beside the highway of the larger work. Owing to the brevity and conciseness of its style, the book was an immediate success and rapidly was thumbed out of existence to become one of the rarest works in the history of medicine. Its translation presents numerous problems largely due to the fact that many of the terms employed in the sixteenth century have largely disappeared from our language. Nevertheless, the translator has overcome these difficulties in most commendable fashion to provide a rendering which is extremely faithful and which retains much of the flavor of the original.

The publication of this English version of the *Epitome* is an event of the first importance. Translator, commentator and publisher are to be congratulated in making available one of the great works of our civilization. It should be in the hands of every physician that he may read the very words of a great master and appreciate his heritage.

* * *

CLINICAL ALLERGY. By Louis Tuft, M.D., Assistant Professor of Medicine, Temple University School of Medicine. Second Edition. Lea & Febiger, Philadelphia. 1949. $12.00.

The first edition of this volume appeared about a decade ago. The expanding knowledge of allergy during this period justified a rewriting of practically the entire book. The author has maintained the high standards of his previous edition. There have been added chapters on antihistamine therapy, aerosol therapy and the relation of fungi-allergic disease. There is considerable repetition of material, as for example methods and principles of treatment of allergic conditions in Chapter V which are repeated in substance in Chapter XVI. The author has included in the above chapters methods of therapy and drugs which have long been discredited and discontinued by specialists and practitioners. Chapter V is particularly complete and useful to the student and general practitioner. The author apparently believes that skin tests are valuable and important as a part of the study of the allergic individual.

Illustrations are limited to the practical and instructive type that are valuable to the general practitioner for whom the book was written.

The section on allergic dermatoses will be found most useful, particularly from the diagnostic standpoint and valuable for the information offered on therapy.

Chapter XXV is actually unnecessary since the clinical manifestations of allergy in children and their treatment are similar in most respects to those of adults.

One will find the appendix very helpful. It contains laboratory methods employed in allergy research (certainly not for the general practitioner), preparation of allergens (usually purchased by the general practitioner), pollen counting, lists of household materials that contain possible allergens, various diets, milk free, egg free, wheat free.

The author limits his bibliography to standard textbooks on allergy. However, he quotes authorities throughout the text, which is unfair to the reader since he cannot check the reference.

This book will be found valuable by the general practitioner, the medical student, and the specialist who seek quick and reliable information of the up-to-date advances in the field of allergy, since it deals with commonly encountered clinical problems and discusses the rationale for the therapeutic measures recommended.

Tuft should be in the possession of every physician interested in allergy.

* * *

LIFE AMONG THE DOCTORS. By Paul De Kruif. Harcourt, Brace and Company, New York, 1949. $4.75.

This is an interesting but somewhat excitably written potpourri of fact, fancy and fiction. In 470 pages the author takes you through parts of the lives of about a dozen contemporary physicians, ranging from Tom Spies to Mr. Henry Kaiser's medical manager. He is not enamored of the editor of the *Journal* of the A.M.A. and states in the preface that that association has recently taken "an historic step ahead for the health of the American people." Equally extravagant statements occur regularly throughout the rest of the book. He refers to the American Medical Association as "the most solid of all our country's unions." An old Michigan friend is a doctor who "over a period of 20 years saved more lives than all Michigan's doctors put together." This same friend developed a renal tumor and took "the months of agony of deep x-ray bombardment to shrink the tumor, ending up with a terrific operation." He lived over five years more. Incidentally, in or about 1940 these same "Michigan doctors were beginning to change from kindly bedside bumblers into crack diagnosticians and public healthmen." This was 1940, a good year for corn, no doubt.

In June of the same year the author journeyed with Dr. Karl Meyer to "one of California's most prosperous county medical societies" . . . where "the gleaming streamlined fleet of Cadillacs, Buicks and Chryslers parked around the roadhouse where the learned meeting was held made 'the author' wonder." The evening was full of Rabelaisian jollity and the author soothed the doctors by telling them that the Wagner-Murray Bill was only a trial balloon.

Mr. De Kruif believes on Page 102 that "the subtle opposition to Tom Spies' work" may have had an economic angle. The constant taking of ample vitamins by the public might lead to the latter visiting the doctor less often.

There are some interesting chapters on Dr. Kabat and Dr. Max Cutler (although the latter is not mentioned by name). The most fantastic part of the book deals with the author's visits to the San Francisco Bay area and his subsequent conversations with various members of the lay and professional staff of the Kaiser empire. These chapters are headed, "Part Five: The Last Maverick—Chapter XIII—What Sid Did; Chapter XIV—To Live or Die." It seems that "the boys—medical politicians—were getting set to give Sid's health plan the business."

"Among all of our medical mavericks we have never seen a more patient man than . . . What was the editor, in that marble-fronted white stone building that houses the American Medical Association in Chicago? He was the real brains, the leadership of the national organization of our doctors. The doctors' union. And how do doctors deliver their services to their more than 100 million customers? Overwhelmingly from their little individual cure stores—solo. And what should the leadership of the doctors' union do? Work for the doctors—for their *status quo*."

The author regards the fact that the California State Board of Medical Examiners treated certain physicians in accordance with the letter of the law (one of said physicians being Mr. Kaiser's medical manager) as evidence of conniving by the state medical association and the State Board of Medical Examiners. The pure fantasy would be amusing if it were not malignant. Coming from the pen of one who purports to have had scientific training and to have ability as a reporter, it can not be ignored. It is totally false and without foundation.

On the same page (405) as this unwarranted attack on the state medical association appears the statement that "At this time Sid had not had a penny in salary from the Permanente health plan operations." Four pages later the author "bangs about Lake Tahoe" in the very fast speed boats of Henry J. Kaiser who is said by some to be "the big, bold builder and high-powered supersalesman who shoves everybody around till he gets his way." The author fails to mention the elaborate dinner which he assisted Mr. Kaiser to give in San Francisco in 1947 at which that genial gentleman attempted to shove around and intimidate the elected leaders of the California Medical Association. He mentions luncheon with Franklin Delano Roosevelt in Chapter I; but no dinner with the President of the C.M.A. in Chapter XIII.

It will interest the staffs of Oakland hospitals to know that Mr. Kaiser's medical manager is "now operating in the black at the rate of $600,000 yearly," these profits being put "into the expansion of his hospital and laboratory facilities and into their paying off their amortization."

Towards the end of the diatribe the author drifts back to his pet subject, the A.M.A. powerhouse. "It is the duty of the powerhouse boys to maintain the *status quo* of a hundred thousand little individual cure shops—a shop to fix up your sparkplugs, a shop to tinker with your carburetor, a shop to bump out your body—now threatened by the streamlined superservice station where groups of experts can give economical over-all care to your machine." Unlike the backward physicians of the Bay Area, the author hopes for the erection of a new Permanente Hospital and Health Plan in Los Angeles, where, he says, "the head doctors of the three medical schools are actually for" this type of streamlined superservice station.

It is always good, albeit depressing, to see ourselves as others see us. If the "others" use a distorted looking-glass, perhaps all the more reason to peruse their effusions. Knowing that the medical profession in California has founded and supported the largest voluntary prepaid medical health plan in the world—a plan that permits its members to select *any* doctor or hospital, even Mr. Kaiser's hospitals and doctors—we can be tolerant of the strange commentaries of one who might have been a bacteriological Caesar. Especially so when even he admits a "profane boisterousness acquired from a somewhat rough life among rough men." One of his friends, he says, had an informal dignity which operated to quiet this boisterousness; "he makes me measure my words; he calms me down." Where was this fidus Achates when the author was reading proofs on this novel?

* * *

PRENATAL CARE. Federal Security Agency — Social Security Administration—Children's Bureau. Completely rewritten, 1949.

This is an admirably prepared pamphlet, single copies of which are available to parents and professional workers without charge from the Children's Bureau in Washington. Additional copies may be purchased at 15 cents each. It, or a suitable substitute, should be read by all expectant parents, since it is well recognized today that a knowledge of the reasons for and content of prenatal and maternity care, and of the physiology of pregnancy and labor contributes greatly to the happy and successful culmination of this important event.

The pamphlet is written in simple, easily understandable terms. A brief description of the sections will serve to describe its contents. In the first section the signs of pregnancy are described. The advisability of early medical consultation is stressed, and helpful suggestions are given regarding the finding of appropriate obstetrical facilities, whether they be through private or clinic sources. The usual history, physical examination and laboratory tests are described. Pregnancy tests, the expected date of confinement, and maternal age are discussed.

The second section describes how the baby grows. A brief description is given of menstruation, ovulation and conception, as well as a chronicle of development at the various weeks of pregnancy. Helpful diagrams illustrate this section. The placenta and bag of waters are described. Determination of sex, abnormalities and twinning are discussed. Two important sections take up the psychological reactions of the prospective parents. Another section discusses the problem of introducing the subject of pregnancy to previous children, and the management of the situation when the new baby is born.

How to keep well during pregnancy is discussed from the point of view of diet, clothing, exercise, rest and sleep, marital relations, bathing, care of breasts and teeth, traveling, etc. Common discomforts and their significance are taken up in sensible fashion.

A list of the important signs of trouble is given. Clearly and simply discussed also are the problems of miscarriage, prolonged vomiting, toxemia of pregnancy, kidney infection, anemia, premature birth, the Rh factor, and chronic diseases.

Simple, well thought-out instructions are given with regard to the necessary preparations and supplies for the baby, and preparations for going to the hospital and the return home.

The process of labor is described with regard to the beginning of true labor, the length of labor and its stages, medicines and anesthetics, and operative procedures. Final sections take up the events of the puerperium and the care of the newborn babe. Special attention and advocacy are given to breast feeding.

PHOTORADIOGRAPHY IN SEARCH OF TUBERCULOSIS. By David W. Zacks, M.D., Chief of Clinics, Massachusetts Department of Public Health, The Williams and Wilkins Company, Baltimore, 1949. $5.00.

This is an interesting monograph of some 300 pages and 275 figures. It deals with several aspects of the radiological diagnostic screening technique and touches some of the many problems inherent in making that technique truly effective. Careful follow-up of persons found to have positive films is emphasized.

The author observed on Page VIII of the preface, "The principal difficulty at present, even in the larger centers of population, is the disparity between the available photoradiographic equipment and other indispensable facilities. In the United States, while x-ray equipment is freely available, chest diagnostic centers and trained personnel are often inadequate to complete the diagnosis of the suspected chest condition and to carry out the necessary follow-up examination."

On page 6 the author stresses that "mass chest radiography, to attain its aim, should be planned methodically to include the total population . . ."; but on the other hand, on page 3 he emphasizes that "it should be realized that a mass chest x-ray survey . . . is but the first step and . . . only a partial solution. There are many related problems; isolation, treatment, supervision, socio-economic and psychology which must be considered in planning. . . . Otherwise, a critical appraiser will regard the failure to solve these related problems as evidence of inadequacy. . . ."

There are detailed tables of organization, in which, for example, a chest physician, a health education worker and various technical and clerical workers are listed, *but* experienced interpreters are not stressed. However, on page 77, the author states that "film interpretation should be made by roentgenologists or chest physicians of considerable experience."

The author illustrates numerous model survey report forms and lists various survey analyses, in which the expression "pulmonary tuberculosis" is freely used, this diagnosis to be made, apparently, on the basis of the roentgen shadows. Then later on in the text he emphasizes that this diagnosis *cannot* be made from roentgenogram alone, but requires clinical study and bacteriological proof (page 130).

The author favors 70 mm. roll film or 4 by 5 inch cut film; at the same time he mentions the importance of the study made by Birkelo, Chamberlain and others which showed that the size of the film is of much less importance than the quality of the examining physicians. *Thirty-five mm. film is just as reliable for mass survey purposes as 70 mm.*, or 4 by 5 inch; it is considerably cheaper and much more convenient to handle.

Nowhere in the book is the failure to date of painstaking and prolonged follow-up emphasized. There is no comment on the experience of Erie, Pennsylvania, where, after a survey of several hundred thousand persons, and the detection of several hundred with "positive" x-ray shadows, less than 25 per cent of the latter were traced at the end of one year, or had sputum or other tests. Nor is the experience in Minneapolis mentioned: This showed that even when traced and offered free medical or sanatorium care, several persons with roentgen and clinical evidence of active disease refused to accept it. This appreciation of the practical difficulty of achieving fruitful results from surveys is conspicuously absent.

The author makes laudable attempts to describe the roentgen shadows seen in miniature films and to illustrate them. However, the absence of expert radiological consultation is evident in some of the terms used, and in some of the legends beneath the illustrations. Over one-half of the book is made up of the latter, and it seems too bad that the following errors were not "caught" by some qualified radiologist and corrected:

Figure 55: "Rib anomaly" should read "strain fracture."

Figure 162: "X-ray fibrosis" should be qualified by some information as to the reason for this supposition (local radiation therapy, etc.).

Figure 235, with flat shadow beneath the heart, is *not* suggestive of diaphragmatic hernia, as labeled.

Figures 253-260, all labeled "heart abnormality," could well bear more descriptive terms, plus indication as to whether their detection benefited anyone.

The author stresses the fact that surveys in the United States disclose about *13 persons per 100,000 to have some evidences of pulmonary tuberculosis.* This small figure should be qualified by a statement as to the approximate number expectorating bacilli. He emphasizes on page 172 that the shadows of minimal pulmonary tuberculosis, of doubtful activity, are most difficult to interpret. "The decision of the physician *may affect for a long time not only the health but also the economic and social status of the individual.* Of first importance in arriving at a decision is an understanding that . . . for correct diagnosis the physician may often need the aid of the roentgenologist, the laboratory, the histologist and the surgeon."

The chapter on the cost of mass surveys is in need of revision. We do not know where a competent full-time clerk can be obtained today at a salary of $112.50 per month, nor where "dinners for health educators working evenings" may be obtained for approximately $1 each. It is just this sort of unreliable statistics that causes misconception as to the true cost of diagnostic procedures of any type.

In summary, we believe that the monograph would be of value if thoroughly revised in the light of the true purpose of infectious disease surveys—the identification and treatment of those found to have such disease, and the attempted prevention of new cases. The loose use of the bacteriological adjective "tuberculous" on the basis purely of roentgen shadows can no longer be regarded as sound. Finally, note should be made of the importance of choosing qualified roentgenologists or other medical interpreters, plus a staff of skilled follow-up "technicians," *before* commencing the survey.

* * *

THE ORIGIN OF MEDICAL TERMS. By Henry Alan Skinner, M.B., F.R.C.S. (C) Professor of Anatomy, University of Western Ontario. The Williams and Wilkins Company, Baltimore, 1949. $7.00.

The timely volume is a valuable etymologic compilation of technical words and terms used in medicine and biology. The author has made his cyclopedia delightfully interesting by authentic vignettes and short essays on the origin, development, and usage of medical terms. Where appropriate, the charming mythologic stories which describe the earliest use of those terms having Greek origins add sparkle to the text. In these days of overloaded curricula, only exceptionally can the student indulge in the formal study of the classic languages. Very few modern students are conversant enough with Latin, let alone Greek, to make their experience in the use of words a rich one. Dr. Skinner has written an important and necessary volume for all students and scholars of medicine. Here is a volume which assists the biologist in crystallizing and purifying his definitions so that his concepts of biologic phenomena may have the proper dialectic and semantic values. It is an important book and it is highly recommended as a bedside or study table companion. When the monotony of study needs to be brightened by some pleasant interlude calculated to enrich the mind of the reader and give more substance to his argument, this book will be in request. The "Origin of Medical Terms" is a valuable addition to the scholarly physician's library.

HEMATOLOGY FOR STUDENTS AND PRACTITIONERS. By Willis M. Fowler, M.D., Professor of Internal Medicine, University of Iowa. Revised Second Edition. Paul B. Hoeber, Inc., New York, 1949. $8.50.

This volume is the outgrowth of a series of mimeographed notes on hematology used for teaching medical students. It is designed to meet the needs of the student, the internist and the general practitioner for a concise, practical book on the subject. It fills this need. It is not a reference book for hematology—as the author freely admits (a bibliography at the end of each chapter gives the key to supplementary material). While the coverage is broad and good, it is not deep. The author passes lightly over controversial matters. One has the feeling that the material has been capably gleaned from the literature rather than from intensive personal experience.

There are a few inconsistencies: With regard to the Wintrobe method for the determination of the sedimentation rate and the hematocrit, for instance, heparin is stated to be the anticoagulant on page 502 while ammonium and potassium oxalate are given on page 511. And there are some debatable statements: On page 84, the author repeats the old belief that pernicious anemia is seldom, if ever, found in negroes. (Recent work suggests that this is not the case.) Perhaps the weakest chapter is the one on "hematologic methods." So few details are given for some of the operations outlined that the student must go to the original source or to a laboratory manual for complete data.

New material in the second edition includes discussions on the use of folic acid (particularly in sprue and pernicious anemia): the use of urethane in leukemia; of nitrogen mustard in the lymphomas; and of radiophosphorus in the treatment of polycythemia and the leukemias.

It is recommended as a useful addition to the medical bookshelf.

* * *

A PSYCHIATRIC APPROACH TO THE TREATMENT OF PROMISCUITY. By Benno Safier, M.D., Director of Psychiatric Service, San Francisco City Clinic; Hazle G. Corrigan, Chief Psychiatric Social Worker; Eleanor J. Fein, Psychiatric Social Worker; Katherine P. Bradway, Ph.D., Psychologist; with foreword by William F. Snow, M.D. American Social Hygiene Association, 1790 Broadway, New York 19, N. Y., 1949. Seventy-five cents.

This book is a further discussion of the psychiatric study and treatment of promiscuity which was carried out in San Francisco under a special grant from the United States Public Health Service. The original report of the initial studies attracted a great deal of attention not only in the United States, but all over the world. The present volume is a further analysis and discussion of the use of the psychiatric approach to the treatment of promiscuity.

Since not only the general public but many physicians have a great deal of misinformation on the subject, the present volume can be recommended for general reading. The original report dealt entirely with women. The present book includes the study of men as well.

The material is from a somewhat selected group, but the conclusions drawn from this study seem quite justified. Certain conclusions which are in accord with the standard psychiatric viewpoint seem worth emphasizing. Promiscuity is not ordinarily evidence that the individual is hypersexed or has a stronger than average sex drive. Promiscuity is frequently in relationship to special emotional problems, and the solving of these emotional problems often leads to a much better and more satisfactory type of sexual adjustment.

The analysis of the bases of promiscuity is too involved to be dealt with in a short book review. It is recommended that those interested in trying to understand the problem of promiscuity should familiarize themselves with this book which is an important contribution to the problem.

SURGERY OF THE EYE. By Meyer Wiener, M.D., Emeritus Professor of Clinical Ophthalmology, Washington University. Second Edition. Grune and Stratton, New York, 1949. $12.00.

The purpose of this text is to present a few well explained and illustrated surgical procedures which, in the author's long and extensive experience, have proven most satisfactory.

This is a text that can be read with benefit by both the surgeon who is beginning his training and the more experienced surgeon.

Chapter one is one of the best resumes of what constitutes a good surgeon and the principles of good surgery that the reviewer has had the privilege of reading.

Chapter three upon anesthesia is clearly explained and well illustrated; and since successful surgery today is dependent upon good anesthesia, this chapter is especially valuable.

Chapter five advocates and explains the method of making the patient ambulatory with monocular eye pad after 24 hours. This method is rapidly becoming accepted practice due to the use of closing sutures.

Chapter eight includes an explanation of Barkan's goniotomy procedure for congenital glaucoma.

Chapter eleven is a revised approach to corneal surgery in which the author was especially well known.

Chapter eighteen is clear and concise with exceptionally clear illustrations accompanying description of the operative technique in dacryocystorhinostomy.

* * *

GERIATRIC MEDICINE—THE CARE OF THE AGING AND THE AGED. Edited by Edward J. Stieglitz, M.S., M.D., Attending Internist, Suburban Hospital, Bethesda, Md. Second edition, illustrated. W. B. Saunders Company, Philadelphia, 1949. $12.00.

Philosophically and medically this is a good book. There is a large field for it, and it fits into that field fairly well. It deals with the problems and diseases of the aged and of the aging, and presents a wealth of information otherwise not readily available about this large group of patients. The editor and his collaborators are interested not only in what happens to the organs of the older patient but also in what goes on in his personality and environment. They sympathetically consider the patient who has the disease as well as the disease which is making the patient ill. With more and more diseases (notably cancer) being scare-headlined, such an outlook becomes particularly valuable, both to encounter and to pass on.

Perhaps the best chapters are those on "general considerations," on senescent changes in various normal organs and systems, and on the changes which occur in the personality during senescence. These chapters are particularly helpful in their discussions of the emotional aspects of old age. On the other hand, the chapters dealing with specific diseases, while adequate, are not outstanding. One reason for this is that the book's policy includes an attempt to discuss as phenomena of old age many conditions which, actually, may affect any stage of life. Some of the collaborators, in recognizing this fact, admit it in almost every paragraph, but still go on to give a summary of these conditions—which may be found in any textbook of medicine.

One further criticism may be made, not of the content of the book but of the style: The writing of certain of the authors is ponderous and circumlocutory.

The book, on the whole, however, has much to offer. It has a place in the library of the general practitioner as well as in that of the man who may attempt to specialize in geriatrics.

THE BASIC NEUROSIS—ORAL REGRESSION AND PSYCHIC MASOCHISM. By Edmund Bergler, M.D., Grune and Stratton, Inc., N. Y., 1949. $5.00.

In the preface, the author asks the question, "Why write the book in the first place?" and answers it by stating, "The answer is simple: I am tired of constantly explaining my ideas on 'orality' and psychic masochism, and hope to save myself time and fruitless effort in answering questions, by being able to refer to the book." His ideas, he states, have already been expressed in "approximately 130 papers and six books," but since he has been blamed for not expressing precisely what he means, he has written this book for those people who have avoided reading his papers, adding, however, that when he has been accused of not expressing himself precisely, it is, in general, "a polite word for reader's shifting the blame for not understanding the material presented—because of his own resistances—onto the innocent author." This reviewer must confess that he is one of those who, resistance or not, has had difficulty in comprehending or accepting some of the author's dogmatic utterances and interpretations.

The first chapter is concerned with the symptoms and signs of "oral regression." The reader who is unfamiliar with psychoanalytic jargon will have difficulty in following the author's "flights into fantasy." Phrases like Oedipus complex, libido, aggression, anal and phallic phases, "autarchic fantasy," passivity, narcissism, castration fear, etc., abound throughout the volume. Analytically, the oral phase refers to that period of an infant's development when his contact with the external world is mainly by way of his mouth: Eating, breathing, vomiting, etc. By psychic masochism is meant the technique developed by people who are "unconsciously lovers of humiliation, defeat, and refusal." For the author there is but one basic neurosis which is oral in genesis, and the other nosologic groups (obsessive compulsive neurosis and hysteria) based on "anal and phallic regression" are but "rescue stations from the basic oral regression." Further elaboration of this concept of neurosis is made on a "nine point basis"; and the analytic concept of the development of conscience (superego) is described in some detail. One chapter describes 27 clinical pictures of oral regression, including among them the oral character neurosis (the "injustice-collectors" who constantly provoke a "kick in the jaw"), those men with premature ejaculation or psychogenic oral aspermia; woman with frigidity, promiscuity; erythrophobia (pathologic blushing), writer's block, pseudo-mental deficiency, retirement neurosis, homosexuality, alcohol addiction, gambling, kleptomania, overeating, oversmoking, and criminality. The author optimistically closes with the statement, "Working with my definition and clinic of orality I can state that the prognosis in orally regressed cases is excellent, provided they are 'exposed' to the correctly applied 'mechanism of orality.'" One certainly cannot criticize the author for any lack of self-confidence! Despite this, there is much in this volume which is stimulating and provocative to the physician who also has some knowledge of psychodynamic concepts.

* * *

BENTLEY'S TEXT-BOOK OF PHARMACEUTICS. Revised by Harold Davis, B.Sc., Ph.D. (Lond.), F.R.I.C., Pereira Medallist, Sometime Chief Pharmacist, University College Hospital, London, with the collaboration of M. W. Partridge, B. Pharm., B.Sc., Ph.D. (Lond.), Ph.C., Lecturer in Chemistry, University of Nottingham, and A. I. Robinson, Ph.C., Late Pharmacist in Charge, Manufacturing Laboratory, Messrs. Stafford Allen and Sons, Ltd., London. Fifth Edition. The Williams and Wilkins Company, Baltimore, 1949. $7.50.

This is the fifth edition of a book on pharmacy with a historical introduction on the development of this field and its standards of procedures in Great Britain followed by a description of methods of preparing, manufacturing, preserving, dispensing and packaging of pharmaceutical preparations which are listed according to Latin names followed by English. The book deals largely with methods, equipment, devices, and standards, 703 pages being devoted to these and 381 pages to medicinal products. Bioassays are given about two pages, and a listing of therapeutic doses 12 pages. The medicinal agents are chiefly from the British Pharmacopoeia, but there are also selections from the British Pharmacopoeial Codex and the United States Pharmacopoeia, including a number of unofficial, often unnecessarily complex, and, according to American standards, unacceptable mixtures. There are descriptions of and standards for such products as cotton, dressings, sutures, ligatures, silk, wool, etc. The author has included accounts of his experiences with drugs as a hospital pharmacist.

The titles for products are sometimes quite different from those used in this country or in scientific literature. For example leptazol is metrazol, but leptazol is not to be found in the index (except under injections) while metrazol is. The same holds for a number of other drugs. Trade names are more prevalent than in similar American books.

There is nothing of interest in this book to practicing physicians, medical specialists and pharmacologists. It is chiefly of interest to pharmacists, especially to those of Britain and its commonwealth nations. It has nothing more or better to offer than the U.S.P. and several publications of the Council on Pharmacy and Chemistry of the A.M.A., and is not necessary as a reference work in medical libraries.

* * *

SEXUAL DISORDERS IN THE MALE. By Kenneth Walker, F.R.C.S., Emeritus Surgeon to the Genito-Urinary Department, Royal Hospital; and Eric B. Strauss, D.M., F.R.C.P., Physician for Psychological Medicine, St. Bartholomew's Hospital, London. Third revised edition. The Williams and Wilkins Company, Baltimore, 1948. $3.50.

This book on the practical aspects of diagnosis and treatment of male sexual disorders has reached a third edition primarily because of its practical and essentially non-technical approach to a commonly met and perplexing problem in general and urological practice. Over one-half of the book is devoted to impotence, which agrees well with the relative frequency of this complaint in office practice. Beginning with an adequate and clear exposition of sexual physiology, the author deals in turn with many aspects of impotence, then discusses in somewhat less detail priapism, sexual deviations, masturbation, and lastly, sexual difficulties in marriage.

It is easy to criticize a work such as this yet find it difficult to improve upon it in order to increase its basic scientific worth without decreasing its readability and its practical value. The fundamental difficulty in writing a book on sexual disorders, just as in handling patients with their complaints, is that it is nearly impossible for the author and for the busy practitioner first to master the fundamentals of psychopathology, since sexual disorders hark back to the very beginnings of personality development, and second to spend the time necessary to search out these basic and original deviations from the complex pattern of the early personality development. As a consequence, both author and reader end with an essentially superficial approach to the problem. The reader is prepared at best by this book to remove, perhaps temporarily, the more superficial blocks to normal sexual activity and, perhaps more important, to avoid organotherapy and instrumentation except in the quite secondary role which it should play. In line with this practical approach, it might be added that there could be more discussion of the sexual difficulties in marriage since these so often are the precipitating factor and, more important, are most amenable to the type of therapy which can be given by the practitioner. The stress on the female role in the control of impotence is well advised.

The book contains 10 illustrations which add little to the value of the text.

CARDIOVASCULAR DISEASE—Fundamentals, Differential Diagnosis, Prognosis and Treatment. By Louis H. Sigler, M.D., Attending Cardiologist and Chief of Cardiac Clinic, Coney Island Hospital; Consulting Cardiologist, Menorah Home and Hospital for the Aged. Grune and Stratton, New York, 1949. $10.00.

This book is an excellent addition to the physician's library. It represents an up-to-date discussion of cardiac disease by an established authority on the subject.

The book has several features which may be of particular interest to the reader. The first few chapters are concerned with general incidence, essential anatomical features, physiological principles of the circulation, data on the normal-sized heart and its measurements and a discussion of cardiac enlargement as such. In addition, chapters on normal and abnormal heart sounds, murmurs, and arterial and venous pulse tracings combine with advantage in one text the anatomy, physiology, and physical diagnosis, as well as the clinical features of heart disease. There is an excellent bibliography at the end of each chapter, and the author has used discrimination in selecting pertinent references. Electrocardiography is dismissed with minimal discussion because of the author's previous volume on the subject. The chapter on paroxysmal cerebral ischemia is particularly good as one might expect from the author's investigations dealing with this subject.

The style is pleasing and the author frequently describes a pertinent case to illustrate by example a specific point in his discussion.

There are a few discussions in which the author fails to present opposing views, such as on page 117 where he states that quinidine should never be used when auricular fibrillation is chronic and persistent, associated with mitral stenosis or other organic heart disease. With such minor exceptions the opinions expressed by the author do not differ significantly from those expressed in other textbooks of the subject.

Sigler's book can be recommended to all physicians.

* * *

MEDICINE—VOLUME 2—DIAGNOSIS, PREVENTION AND TREATMENT. By A. E. Clark, M.D., Fellow Corpus Christi College, Cambridge. The Williams and Wilkins Co., Baltimore, Md., 1949. $7.00.

The first volume of Clark-Kennedy's treatise on medicine (reviewed in California Medicine, 68:405, May 1948) was concerned with the individual patient, the disease which afflicted him and his reaction to that disease.

The second volume is concerned with the diagnosis, prevention, and treatment of disease. It is divided into six chapters: Clinical Diagnosis; Special Investigation; Disturbance of Function; Reactions of the Mind; Pathological Processes; and the Practice of Medicine.

The physician who may wish to see medicine as a whole will do well to take the time to read this book which surveys his profession in its entirety. The author's approach is that of a series of short monographs based on broad principles. Within a disciplined outline, he allows his thoughts to range freely—with stimulating results. For the man who does not wish to peruse the complete book, the chapter summaries, again as in Volume One, epitomize the facts and the philosophy, although they leave them bare.

With regard to specific problems, the different parts of the book bring up questions which the practitioner encounters one day or another almost every week. The problems are mentioned, a few answers are suggested, the rest is left up to the reader. On some of these specific problems, particularly in therapy, the reader may—as the reviewer does—part company with the author. However, the reviewer never read any part of the book without feeling that it had been worthwhile and stimulating.

QUICK REFERENCE BOOK FOR MEDICINE AND SURGERY. A Clinical, Diagnostic, and Therapeutic Digest of General Medicine, Surgery, and the Specialties. Compiled Systematically from Modern Literature by George E. Rehberger, A.B., M.D. 14th Edition. J. B. Lippincott Company, 1949. $20.00.

The title of this volume expresses precisely what it is—a quick reference book of medicine and surgery. In its more than 1,700 pages, the entire scope of clinical medicine is encompassed. It is divided into ten principal sections. Here the diseases most likely to be met in practice are listed alphabetically. An interesting feature is the inclusion of the derivations of most of the principal medical terms. An eleventh section is given over to a summary of clinical pharmacology.

There is a tremendous breadth to the book but, necessarily, little depth. Almost anything which the practical physician may wish to look up is to be found. The discussions include a mixture of the old and the new, and the reader may need a good deal of discernment and discrimination to evaluate what he finds. Some of the therapy is outmoded: For example, aspirin is recommended as the chief agent for the itching of dermatitis venenata; the treatment of syphilis is outdated by at least three years.

The book can be of considerable use to the general practitioner who is too busy to look up a subject at length, but cannot be recommended for students. Reviewer's note: Any medical reader choosing one single clinical reference—with brief but pointed information—to take with him to a desert island, might well select this book.

* * *

SYPHILIS: ITS COURSE AND MANAGEMENT. By Evan W. Thomas, M.D., Professor of Clinical Medicine, New York University College of Medicine. The Macmillan Company, New York, 1949. $5.50.

This book represents a new departure in texts on syphilis. The method of presentation is quite different from that used in the previous standard texts, and the new presentation is a great improvement over the old.

The author has probably had a wider clinical experience with syphilis than almost any other investigator, and the material used in the text is taken almost entirely from his own clinic at Bellevue Hospital in New York and is not summarized from the literature as is the usual custom.

The clinical course of the disease is described briefly but clearly, and the reader is spared the customary minute and wordy descriptions of the rarer lesions of syphilis and the endless lists of other disorders that may enter into the differential diagnosis of syphilis.

The general course of untreated syphilis is described, and the clinical manifestations of the various stages are correlated with the pathological processes induced by the Treponema pallidum.

In a brief but excellent chapter on immunology, the difficulties in distinguishing reinfection, relapse and superinfection are discussed and the falsity of the old Neisserian theory that reinfection is proof of previous cure is emphasized.

The diagnosis of syphilis by means of the serologic tests is considered, together with an excellent discussion of false positive reactions, and the difficulties involved in interpretation of serologic tests. Various patterns of response to therapy are illustrated with case reports from the Bellevue clinic.

The various stages of syphilis are discussed chronologically with brief but adequate clinical descriptions followed by treatment recommendations, largely based on Dr. Thomas' huge personal experience. Arsenic, bismuth and the iodides are mentioned only to be rejected, as the author believes that penicillin alone is at least as good as, and probably better than, any previous form of therapy, and that penicillin will supersede every other type of treatment. However, the details of optimum penicillin treatment are not determined as yet. Probably the best preparation for the treatment of syphilis that has appeared so far is procaine penicillin in oil with 2 per cent aluminum monostearate. Prolonged action, rather than high blood levels, is important in antisyphilitic therapy, and injections of this preparation give measurable blood levels lasting several days.

In the discussion of neurosyphilis, penicillin is stated to be equal to, if not better than, all older types of treatments including malaria, and Dr. Thomas predicts that fever therapy may be discarded after the technique of penicillin treatment has been perfected. He stresses the importance of the spinal fluid changes as a guide to treatment that is more reliable than the clinical course. If the spinal fluid shows a normal cell count and protein content six months after treatment, there is little chance of progression, even though the Wassermann and gold tests remain positive.

"Syphilis: Its Course and Management" is a brief, readable, authoritative treatise that is probably more useful than any book on this subject that has been published up to the present time.

* * *

THE COMPLEAT PEDIATRICIAN—Practical, Diagnostic, Therapeutic and Preventive Pediatrics—for the Use of Medical Students, Internes, General Practitioners and Pediatricians. By Wilburt C. Davison, M.A., D.Sc., LL.D., M.D., Professor of Pediatrics, Duke University School of Medicine, Durham, N. C., Sixth Edition, Duke University Press. 1949. $5.00.

This unique volume (the antique spelling of its title is taken from Izaak Walton's Compleat Angler) now deservedly reaches its sixth edition (the first was published in 1934), having proved its usefulness not only to pediatricians but also to general practitioners and other physicians having occasion to deal with children. For those not already familiar with the work, it should be explained that it is essentially a notebook for quick reference to practically all the clinical problems of childhood. It contains an enormous amount of factual information condensed into a volume less than an inch in thickness (which can be placed in a medical bag), with an excellent index and with many cross references in the text. The amount of material contained in the volume will be better appreciated from the author's statement that for the last edition he has consulted 2,418 original articles in addition to the 17,405 used in previous editions. Thus, the reader has at hand and within a few moments, up-to-date information on practically all phases of pediatrics, including disease syndromes, individual symptoms, physical examination, laboratory methods, diets, growth and development, and commonly used prescriptions.

Obviously, such a work has its limitations and, for full description of individual topics, one must consult one of the larger texts, but within such limitations "The Compleat Pediatrician" covers a vast range in amazing detail. Dr. Davison is professor of pediatrics at Duke University School of Medicine and an outstanding authority in his field.

* * *

THE PRACTICE OF REFRACTION. By Sir Stewart Duke-Elder, M.D., F.R.C.S., Surgeon-Oculist to H.M. the King, Consulting Ophthalmic Surgeon to the Army and the Royal Air Force. Fifth Edition. 216 illustrations. The C. V. Mosby Company, St. Louis, 1949. $6.25.

Since the first edition was introduced in 1928 this book has become one of the standard texts on refraction. In the book a simple and essentially non-mathematical form of presentation has been employed, stressing the clinical practice of refraction without burdening the reader with cumbersome mathematical formulae. Particular emphasis is put on the symptoms of refractive errors together with their treatment.

In the new fifth edition the character of the book remains essentially unchanged although new matter has been added here and there.

In the chapter on myopia the discussion of the etiology has been revised to conform to some of the more modern conceptions. There has also been considerable revision in the text on the treatment of myopia. The description of the mechanism of accommodation has been brought up to date and a chapter has been added on anomalies of convergence. The transient changes in refraction and the subject of aniseikonia have been discussed in more detail than in previous editions. The chapter on squints has been curtailed so that only their relation to refractive errors has been considered.

The format in general resembles that of previous editions but the paper and printing do not measure up to the usual standard. In spite of this the book remains a "must" among the textbooks of the resident in ophthalmology.

* * *

THE SKIN PROBLEM FACING YOUNG MEN AND WOMEN. By Herbert Lawrence, M.D., Timely Publications, 303 Sutter Street, San Francisco, 1948.

This very readable small volume was written for the adolescent patient with acne. It is intended to explain his problems in language which he can understand so that he can cooperate with his doctor, in much the same way that similar books have been written for patients with tuberculosis, diabetes, allergic disease, etc.

The causes of acne are discussed, many misconceptions are corrected, and advice is given regarding diet, general hygiene, and local home care of the skin. Considerable stress is placed upon the emotional problems of adolescence which the author considers to be an important contributing factor. Finally, the author explains what a properly qualified dermatologist might be expected to accomplish in the treatment of this disorder.

To this reviewer, it would appear that the book maintains a carefully balanced approach to the subject, utilizes modern scientific knowledge and refrains from extravagant claims or advocating therapeutic procedures which are insufficiently established. Perhaps a little stronger emphasis should have been given to the tendency of the disease itself to produce scarring and to the fact that the scars which remain after the active process has subsided were caused by the destruction of tissue by the pustules and infected cysts and *not* by the treatment such as roentgen therapy, opening of lesions, etc.

The acne patient should derive considerable benefit from reading this volume, and the dermatologist should be benefited by receiving much better cooperation from the patient.

* * *

CAMPBELL'S OPERATIVE ORTHOPEDICS. Editor, J. S. Speed, M.D.; Associate Editor, Hugh Smith, M.D. Second Edition, 1,141 illustrations including two color plates. The C. V. Mosby Company, St. Louis, Mo., 1949. $30.00.

This excellent two-volume review of the field of orthopedic surgery is of interest not only to the orthopedic surgeon but to the general and industrial surgeon as well. Though considerable attention is given to fundamental subjects such as pre- and postoperative care, operative approaches and techniques, most characteristically the book offers a wide variety of surgical procedures for various orthopedic deformities and diseases. The volumes, containing many references, are well indexed and illustrated. New material not in the first edition has been included.

CALIFORNIA MEDICINE

Index to Volume 71, July - December, 1949

KEY TO ABBREVIATIONS USED IN INDEX

(Or.)—Original Article.
(Ed.)—Editorial.
(MP)—Medical Progress.
(CPC)—Clinical-Pathological Conference.
(CS)—Clinical Symposium.
(CMA)—California Medical Association.
(CR)—Case Report.
(I)—Information.
(LE)—Letters to the Editor.
(MJ)—Medical Jurisprudence.

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